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CAN INDUSTRIAL WARFARE BE ABOLISHED?

ACCORDING to Dr. Charles W. Eliot, president emeritus of Harvard University, who has been a very keen student of industrial problems, the possibility of putting an end to industrial warfare must come through profit-sharing rather than through legislation or any other political action. Dr. Eliot believes that the co-operative spirit, which has been shown in the systems of profit sharing introduced into some lines of industry, point the way to a final solution of the unrest and discontent which exists in the ranks of labor.

"Industrial peace is impossible in any nation where the employers and the employed are in a chronic condition of mutual distrust," says Dr. Eliot in a recent article. "Profit sharing is the best method of bringing to bear on the employe the same motives that govern the employer and giving him a sustained interest in his daily work."

This distinguished educator and other profound students of social and economic problems are anticipating that there will be a democratization of industry as a result of the world war and that the time is not far distant when profit sharing will be more widely introduced.

Profit sharing appeals, no doubt, to the best human motives, motives which build up the individual and his family, and tend to the improvement of a workingman's condition in life and that of his wife and children.

Industry as a whole has seldom enjoyed entire freedom from industrial turmoil. When one section of the country is free from strikes and lockouts, another district will be afflicted.

While it is true that agreements between labor and capital, relative to wages have been lived-up to in some instances, it is also true that in other instances neither one side nor the other has observed their respective obligations.

That there must eventually be a change in the relations between capital and labor seems to be a foregone conclusion. It has been predicted by those who have watched intimately the trend of affairs in industry, that a re-adjustment must sooner or later be brought about. The public have endured the annoyance and embarrassment of strikes and lockouts for generations, and its patience has practically reached the limit. It would not be surprising therefore, if after the war, some final and lasting solution to labor difficulties will be demanded.

It is difficult to predict the nature of this re-adjustment, whether it will prove revolutionary in its effect upon the employer and employe. At any rate there is no doubt that after the war, when the markets of the world are thrown wide open and business resumes its fullest activity, the struggle between capital and labor will be renewed with unprecedented fury. Then the menace of the situation will be brought home to the public, and a solution of the time-worn problem will be eagerly sought.

We have seen that labor has gathered greater and greater strength in recent years. We have seen labor growing more aggressive and capital more resistant than they were twenty years ago.

Legislatures have bowed to the demands of labor. The hasty enactment by Congress of a law demanded by the Railway Brotherhoods in August, 1916, indicates that even the national government is disinclined to precipitate a struggle between capital and organized labor.

When the subject has been considered from every angle, it does appear that profit sharing offers the nearest approach to a solution of the difficulties, which have disturbed the relations between capital and labor for over a hundred years.

The Present Status of Electric Heating

Notes on Electric Heating, Showing How and Under What Conditions Electricity May Prove Satisfactory

By CHAS. L. HUBBARD

THE increasing use of electricity as a source of heat for different purposes, especially for cooking and various manufacturing processes, frequently brings up the question of electrical heating for dwellings and other types of buildings.

Reports of successful results by this method in certain parts of the West, together with the high efficiency of electric radiators, as compared with steam or water systems, might easily lead one astray as to the actual status of electricity for general heating purposes.

If electricity compares favorably with coal, in point of economy, as a source of heat in certain parts of the country, why not in others?

If practical for cooking purposes, why not for warming also?

If more convenient and equally economical for warming an isolated or infrequently used room, why not for the whole house.

If the thermal efficiency of an electric radiator is practically 100 per cent, while steam and hot water systems range from 30 to 60 per cent, why not use electricity?

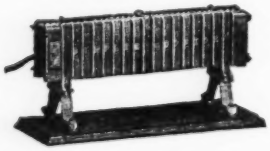


Fig. 1.—Small Electric Radiator, Enamel Insulation, 800 to 1,500 Watts Capacity.

Fig. 2.—Another Type with Enamel Insulation. 800 to 1,100 Watts Capacity.

These are fairly representative of the questions which are being asked by the owner and prospective builder as the use of electricity in the home becomes more and more common, and the heating engineer must be prepared to answer them intelligently, if he wishes to serve his client to the best advantage.

It is proposed in the present article to review the subject briefly, showing how a true comparison of the efficiencies of different heating systems should be made, and how and under what conditions, electricity may prove more satisfactory.

A short account of what is being done in the way of electric heating in the West will be included, together with a brief description of the latest heating devices employed.

First, let us take up the commercial unit of electricity, the "Kilowatt hour," and see what it is equivalent to in heat units. The conversion may be made as follows:

One horsepower of mechanical energy = 746 watts of electrical energy. One horsepower also equals work done at the rate of 33,000 foot pounds per minute, from which it is evident that 1 watt = $33{,}000 \div 746 = 44.23$ foot pounds per minute. As 778 foot pounds of work are equivalent to 1 heat unit (B. t. u.), then 1 watt is equivalent to $44.23 \div 778 = 0.05685$ heat units per minute, from which we find that 1 kilowatt (1,000 watts), per hour has a heat equivalent of $0.05685 \times 1{,}000 \times 60 = 3{,}411$ B. t. u.

One pound of average anthracite coal will give off in the process of combustion about 13,000 B. t. u., of which, in the ordinary heating boiler, approximately 50 per cent or 6,500 B. t. u. are transmitted to the steam. Then we have available from 1 ton of coal, $6{,}500 \times 2{,}000 = 13{,}000{,}000$ B. t. u., which is the equivalent of that contained in $13{,}000{,}000 \div 3{,}411 = 3{,}811$ kilowatt hours of electricity. The cost of this amount of heat, purchased in the form of coal, will vary from $5 to $10, depending upon the locality and condition of the coal market. The cost, when purchased in the form of electricity, may be obtained from the following table:

Rate per Kilowatt Hour.	Cost of 3,811 Kilowatt Hours.
1 cent	$ 38.11
2 cents	76.22
4 cents	152.44
6 cents	228.66
8 cents	304.88
10 cents	381.10

Knowing the current rate for electricity in any given locality and the cost of coal, it is a simple matter to make an approximate comparison for any given case. For example, with a rate of two cents per kilowatt hour and coal at $6 per ton, the cost of a given quantity of heat in the form of electricity will be $76.22 \div 6 = 12.7$ times that of the same quantity in the form of steam, generated on the premises in a boiler having an efficiency of 50 per cent.

As 2 cents per kilowatt hour is about the lowest limit for current generated by steam power, it is evident that the difference in cost between the two systems of heating would be much greater over a large part of the country.

In case of an isolated plant, generating its own light and heat, a comparison between steam and electric heating may be made as follows: Assume that by the use of good coal, well-designed boilers and condensing engines, we are able to deliver 1 horsepower for each 2½ pounds of coal burned per hour. Let us also assume the combined efficiency of the dynamo and circuit to be 85 per cent, then each horsepower delivered by the engine produces 0.85 electrical horsepower at the heaters, which is equivalent to

$$\frac{0.85 \times 33{,}000 \times 60}{778} = 2{,}163$$

B. t. u. per hour.

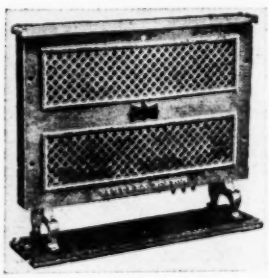


Fig. 3.—Electric Radiator, Coil Spring Type. 3,000 to 6,000 Watts Capacity.

Since it requires 2½ pounds of coal to produce 1 horsepower, it follows that the heat contained in the electricity generated per pound of coal burned in the furnace will be $2{,}163 \div 2.5 = 865$ B. t. u.

Boilers of the type used in power plants of this kind will utilize about 8,000 B. t. u. per pound of coal, therefore, the efficiency of the electric system is to that of the steam system as 865 to 8,000, or 1 to 9.2. That is, if electric radiators

should be used in the above case it would take between 9 and 10 times as much fuel to heat the building as it would to employ steam, to say nothing of the increased cost of the plant. For example, for every pound of coal burned with steam heating, it would require 9.2 pounds for electric heating, and the boiler plant would necessarily be 9.2 times as large. In addition to this, there would have to be installed the required engines and dynamos to change heat into electricity, which, in turn, would have to be changed back into heat again at the radiators.

This shows the fallacy of electrical heat distribution in a plant generating its own steam, and the conditions are more unfavorable, in most cases, when buying current from a central plant operated by steam, or even by water power under average conditions. We have seen that with the extremely low rate of 2 cents per kilowatt hour, and coal at $6 per ton, the cost of electric heat is nearly 13 times that of steam heating with the average house boiler. With a rate of 4 cents per kilowatt hour and coal at even $8 per ton, this ratio would rise to $152.44 \div 8 = 19$. In general, it may be said that under ordinary conditions the cost of a given amount of electric heat is from 10 to 20 times that of the same amount of heat in the form of steam or hot water. In same cases, however, the fuel cost alone may not be the deciding factor. The substitution of electric heat, purchased from a power company, will often reduce the cost of labor, while the greater convenience, cleanliness, and saving in space may also have a money value. However, this excessive cost practically disposes of the question of heating entire buildings by electricity except under some of the unusual conditions to be mentioned later.

Let us now see, in view of the large increase in cost of electric heat over steam or water in most parts of the country how the former may have the advantage in certain

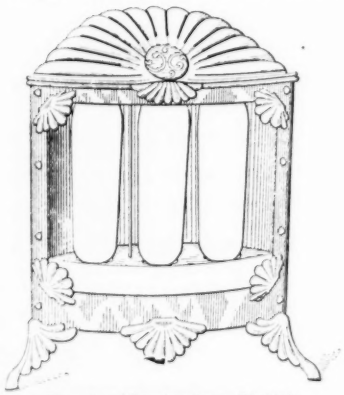


Fig. 4.—Illuminating Electric Heater.

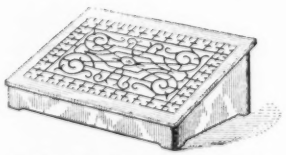


Fig. 5.—Electric Foot Warmer.

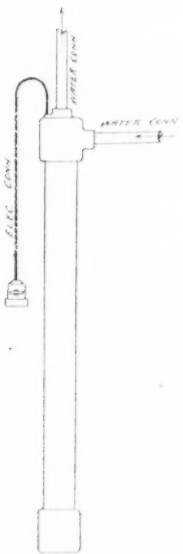


Fig. 6.—Electric Water Heater.

cases. Mention has already been made of the high efficiency of the electric radiator (practically 100 per cent), as compared with other systems. This, unless thoroughly understood may give a very wrong impression.

An efficiency of 100 per cent, as commonly applied to electric heating, refers to the radiator only, that is, electricity delivered as the radiator is changed into heat without loss or waste of any kind. There is no chemical change produced. No mechanical power developed, no light given out; it is all changed into heat, and is therefore 100 per cent efficient. A distinction should be made between the efficiency of the *radiator and the entire system.* In order to get a true measure for comparison with other methods of heating we must go back to the coal bin. For example, we found in the average isolated plant that 1 pound of coal supplied to

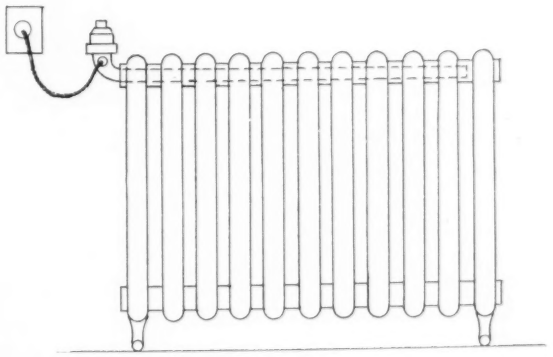


Fig. 7.—Electric Hot Water Radiator, Showing Heating Element Extending Through Upper Part.

the furnace produces about 865 heat units at the electric radiator. If the heat of combustion of this pound of coal is 13,000 heat units, then the efficiency of the *system* is only

$\frac{865}{13{,}000} = 0.066$ or 6.6 per cent, although the radiator efficiency is 100 per cent.

So far as practical results go the steam radiator is very nearly as efficient as the electric radiator. Steam in condensing gives up its latent heat, and the water of condensation is returned to the boiler, the only loss is that due to radiation from the supply and return pipes, and much of this is utilized in the general warming of the building, although it may be practically lost to the particular room in which the radiator is located. In the average steam system from 40 to 50 per cent of the heat of combustion is utilized, part of the remainder going up the chimney and part being given out where it is not needed.

The proper sphere of electric heating, under ordinary conditions, is in the isolated room, or when heat is only required for a short time, or as a supplement to the regular system. Suppose for example the furnace fire has been allowed to go out in the spring, and there comes a cool morning, when it is desired to warm up the dining room for a short time, and perhaps a sewing room or nursery for a longer period. By noon the sun has warmed up the rooms so no artificial heat is required, while at night the weather may have moderated or it may only be necessary to have a little heat for a short time in the living room. Two or three electric heaters in the house under these conditions are not only a great convenience, but may prove an actual economy in the saving of fuel.

Starting up a steam or water system for a small amount of heat temporarily, is very expensive for the actual amount of heat required. Kindlings must be used in addition to coal, and the cold water and the system of piping and radiators must be raised to the working temperature before there is any available heat for warming the building. A new fire under these conditions usually overheats the rooms, and windows are opened and heat wasted. Generally, in cases of this kind, the fire is carried longer than needed in anticipation of another cold day, and a low fire is always wasteful in the use of fuel, for the amount of heat actually utilized.

Electric heat may be used at such times just *when*, just

where, and in the exact amount required, and under such conditions may prove more economical than steam or water, to say nothing of the convenience. Again, the trouble of starting a fire for temporary use often prevents one from doing it and may result in colds or other sickness, to say nothing of the discomfort.

There are two ways of installing electric heat for temporary use during the spring and fall, as above described. One is to place individual heaters or radiators in the particular rooms, it is desired to warm, and connect them with the lighting fixtures. This is, of course, the simplest and least expensive, both to install and operate. Another arrangement, which may be applied to a hot-water system, is to run a by-pass around the boiler and insert in this an electric heating device. In this case the regular system of piping and radiation is made use of, the water being heated by electricity instead of a coal fire. This arrangement requires more time for warming up and may waste the heat left in the water, if the current is not shut off until heat is no longer required.

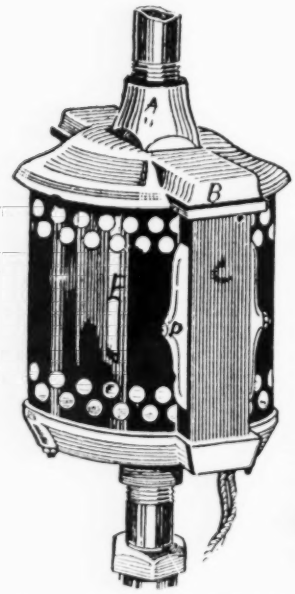


Fig. 8.—Induction Electric Water Heater, 2½ Kilowatts Capacity.

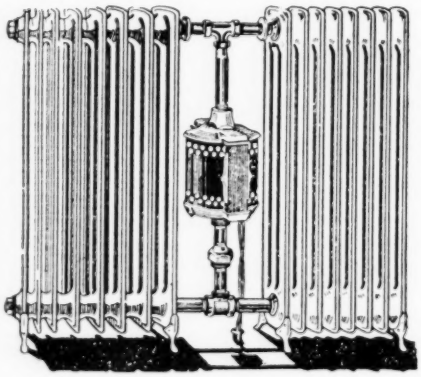


Fig. 9.—Showing Electric Heater Attached to a Hot-Water Radiator.

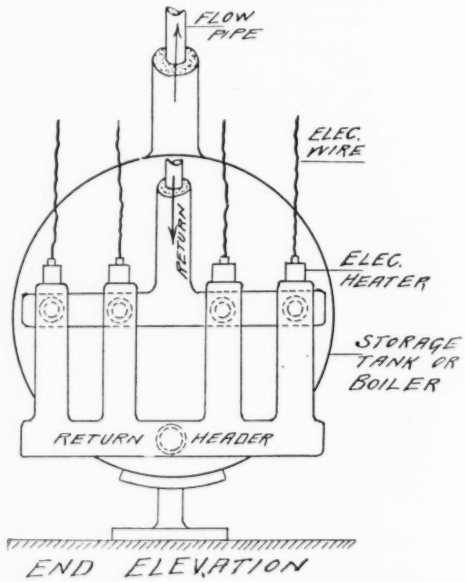


Fig. 10.—Showing Electric Boiler for Replacing Ordinary Boiler in Hot-Water Heating.

It is more convenient when it is desired to warm a considerable proportion of the house, but is more expensive to operate, if heat is only required in two or three rooms.

There are often rooms, which may heat properly in ordinary weather, but cannot be kept sufficiently warm at lower outside temperature, or during high winds, without forcing the system and therefore overheating other rooms and wasting fuel. The use of electric heaters in such rooms, temporarily as required, may prove economical as well as convenient. An electric heater in the bath room may also prove a great luxury at a comparatively small expense for those who wish to take cold baths in the morning before the regular heating system is well under way.

Enough has been said to indicate the legitimate field of electric heating, and other specific cases will suggest themselves. It is simply a modern substitute for the oil stove and portable gas heater, being more expensive to operate, but more convenient and sanitary.

The question may be raised, if it is so much more expensive for heating how can it be used for cooking? This is because the amount of heat used is so much less, as compared with house warming. In case of a coal range there is a great deal of heat radiated from the entire surface which is wasted, so far as actual cooking is concerned. With an electric range the oven is thoroughly insulated so that a very large proportion of the heat is utilized, and very little wasted. The strong points in connection with electric heating for all domestic purposes are convenience, cleanliness, ease of regulation, and the fact that the heat can be turned off as soon as it is no longer needed.

In connection with the above it may be interesting to note what has been done on a larger scale in some parts of the West. The most extensive use of electricity for the heating of dwellings has been in Seattle, where a number of buildings have been equipped for this purpose. Both direct electric radiators and electric hot-water systems have been used, the latter, however, having proved more satisfactory for reasons, which will be mentioned later. The first house upon which a trial was made contained rooms and was equipped with radiators of the direct or air type, having a combined capacity of 9 kilowatts. The total consumption of current for the year amounted to 10,250 kilowatt hours, running from 2,430 in December to 20 in July. An average temperature of 70 degrees was maintained inside the house, and at night it was kept at 58 degrees. The mean outside temperature was 51 degrees and the minimum 26 degrees. The cost of heating this house can be easily estimated from the data given, for example—at 2 cents per kilowatt hour it would amount to 0.02x10.250=$205, and at 5 cents it would be 0.05x10.250=$512.50 for the season, from which it is evident, that at ordinary prices for electric current, this method of heating would be prohibitive.

The best results in Seattle were secured by the electric hot-water method, in which electric heaters were employed in connection with a storage tank of large capacity. With this arrangement a supply of hot water was stored during the day so that the heating load could be cut for a period of 4 to 5 hours during the time of heaviest lighting, there being sufficient heat stored in the water in the tank to bridge over this period. By this arrangement the electric company was enabled to carry a larger heating load during "off peak" hours, thus making it possible to give special rates for this purpose. With a rate of one-half cent per kilowatt hour, and coal at $6 per ton, heating by electricity would cost from 25 to 40 per cent more than coal, depending upon the efficiency of the heating plant.

(Continued on Page 205.)

A Modern Shop Drinking Water System

Notes on the Design and Installation of a Modern Drinking Water System, With Illustrations

By HAROLD L. ALT

Continued from Page 158 in the October 27th Issue.

THERE is a shorter method of computing used by some in which the use of the square feet of pipe surface is done away with. The disadvantage of this method lies in the fact that for its use Table I must be at hand for constant reference.

This method involves the determining of the loss in B. t. u. per *lineal* foot per degree difference for various sizes of pipe and kinds of covering. In using this table all that is necessary is to take the lineal feet of pipe and select from the table the factor for the size of pipe and type of covering to be used, multiplying the lineal feet by this factor for 1 degree and then by the number of degrees temperature difference.

Thus in the first computation for Circuit A there were 2,424 lineal feet of 1½-inch pipe and 738 lineal feet of 1¼-inch pipe. The covering is ordinary cork ice water covering and the temperature difference was 50 degrees. Then from Table I for the 1½-inch pipe the factor is 0.21 and for the 1¼-inch pipe 0.19. This gives

2,424×0.21×50=25,452
738×0.19×50= 7,011

32,463 B. t. u.

By the other method the total loss for Circuit A was computed as being 30,660 B. t. u., showing that the first figures are practically the same as the results shown on the good cork covering under test conditions.

The next thing to settle is the size of refrigeration plant required. Such plants are usually rated in tons of ice per 24 hours, or in other words, the size of the plant is based on the number of tons of ice which in melting would produce the same cooling effect in 24 hours. As every pound of ice in melting absorbs 142 B. t. u., it is only necessary to divide the total B. t. u. absorbed by the plant to get the rating.

The total B. t. u. absorbed consists of the following:

(a) Absorbed in the pipe lines.
(b) Water lost in circuit (quantity used).

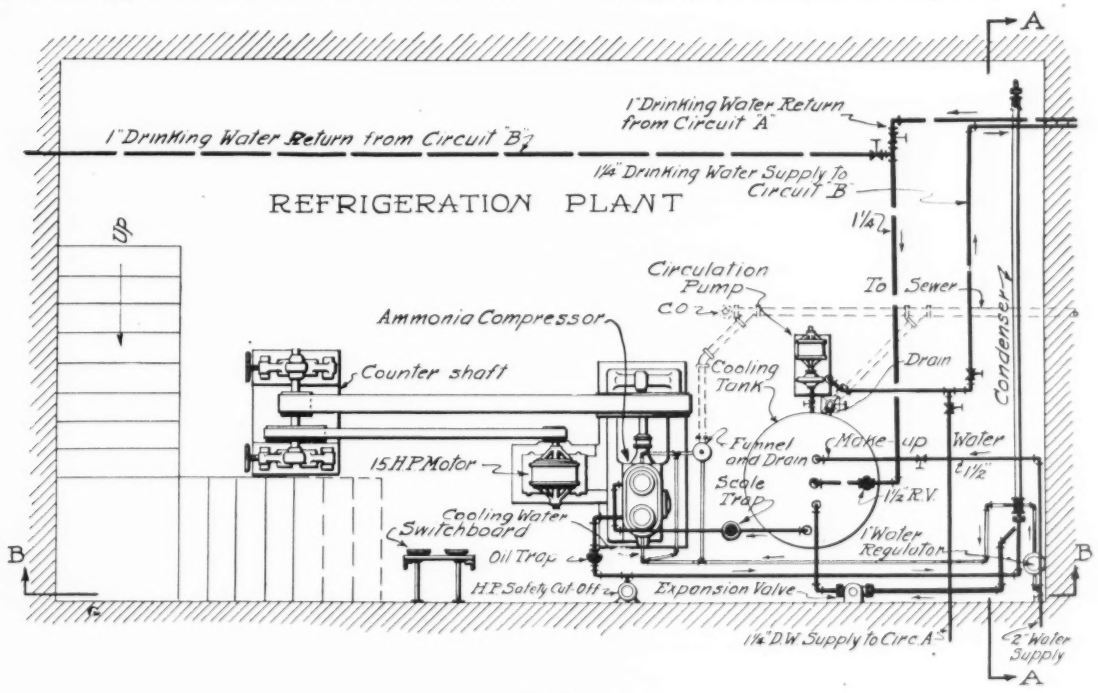


Fig. 3.

(c) Heat developed in friction.
(d) Losses in the refrigerating plant, cooler, etc.

The first of these losses has already been carefully computed and is for (a) 41,680 B. t. u. per hour.

The second loss can be computed based on 100 gallons per hour or 100×8⅓=(70—50°) 833×20=(b)16,660 B. t. u. per hour.

The third loss for the whole system can be computed the same as for Circuit A, or (10+6+1) gallons per minute

$$\times 8\tfrac{1}{3}\times\frac{60}{43}=17\times 8\tfrac{1}{3}\times 140 \text{ ft.}=19{,}839 \text{ foot pounds.}$$

19,839/778=25.5 B. t. u. per minute.
25.5×60=1,530 B. t. u. per hour.
(c)=1,530 B. t. u. per hour.

For the loss in the plant it is customary to make an

arbitrary allowance of 10 per cent for this or (a) 41,680, (b) 16,660, (c) 1,530, a total of 59,870×10 per cent=(d) 5,987 B. t. u. per hour.

The total B. t. u. per hour equals: (a) 41,680, (b) 16,660, (c) 1,530 (d) 5,987, or 65,857 B. t. u. say 66,000, and the total B. t. u. per 24 hours is 66,000×24=1,584,000 B. t. u. To reduce the equivalent pounds of ice divide by 142 B. t. u., the heat absorbed by melting one pound, or 1,584,000/142=11,155 pounds of ice, or 11,155/2,000=5.5 tons, required size of plant.

The standard type of ammonia compression apparatus

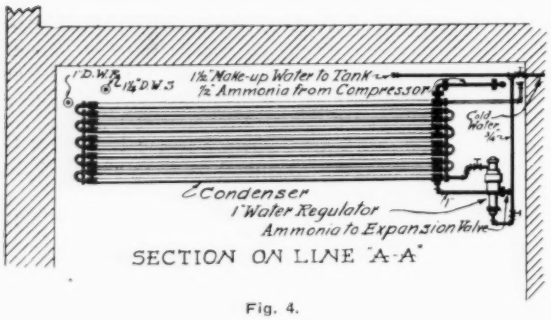


Fig. 4.

was installed for this plant, the apparatus being arranged as shown in the plan, Fig. 3, and the elevations A-A and B-B, shown in Figs. 4 and 5. In the compression system the ammonia gas is compressed in the ammonia compressor, this developing great pressure and temperature in the ammonia gas; the hot gas then passes through the oil trap and to the condenser, where the gas passes through an outer pipe and cold water through the inner pipe, keeping the water in contact with same. This type of condenser is known as a double pipe condenser because of its construction, and it is a counter flow apparatus, the hot ammonia gas entering at the top and passing downward cooling and condensing in its passage, while the cooling water enters at the bottom and passes upward, warming as it absorbs the heat from the gas, finally leaving at the top of the condenser. This may be clearly perceived in Fig. 4, which shows an elevation of the condenser and the connections thereto.

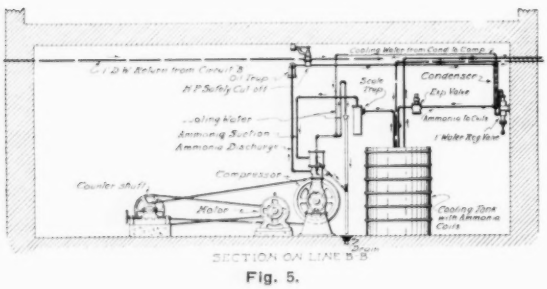


Fig. 5.

After leaving the condenser, the liquified gas goes to the expansion valve from which it is admitted to the cooling tank coil. After the liquid passes the expansion valve, it is no longer under the high pressure of compression, but instead it is in a pipe line connected through the coil directly to the suction of the compressor. As a result the liquid immediately starts to vaporize, drawing the necessary latent heat from the water in the cooler which is in contact with the coils and thereby cooling the water.

The cooler is an open, insulated tank into which the return drinking water is forced through the relief valve shown in the drinking water return line. The cooler has a removable insulated top and contains the coil of ammonia pipes, in which the ammonia vaporizes, and is known as the cooling coil. It is also provided with an overflow and drain to sewer as shown, a suction pipe to the circulating pump and a make-up water connection controlled by a ball float. Whenever water is drawn out of the system at any point, the return is short that much water and does not equal the amount of water being sent out by the circulation pump. As a result the water level in the tank falls, the ball cock opens the make-up water line and the tank is refilled to the proper level.

This system does not require the use of a balance tank, as the relief valve always permits excess pressure to be relieved, although its primary purpose is to keep sufficient back pressure on the system to provide for a proper flow of water from the fountains, usually 5 to 10 pounds.

The use of a balance tank is only really necessary on a closed system, it being necessary then to allow for the contraction and expansion of the water due to changes in temperature. This, however, involves a closed cooling tank and the omission of the relief valve, a diagram of an elevation of such a system being shown in Fig. 6. In this case the circulation pump merely moves the water around the circuit, the head or pressure on the fountains being due to the height of the balance tank plus the friction in the line between the individual fountain and the suction end of the circulation pump.

As the average amount of high pressure steam re-

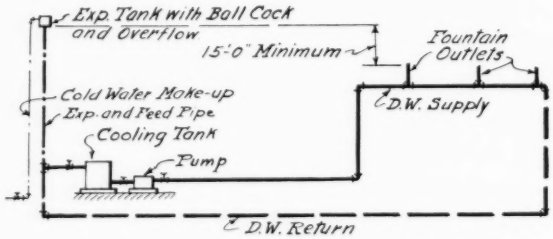


Fig. 6.

quired per ton of refrigeration runs about 45 pounds when a Corliss engine is used to supply the motive power, it can be seen that if such an engine requires 20 to 25 pounds of steam per horsepower the horsepower per ton of refrigeration must be 45÷25 to 45÷20 or 1.8 to 2.25 horsepower per ton. If an electric motor is provided the horsepower of the motor must be 5.5×2.2=12.1, but to allow for increased demands in the future a 15-horsepower motor was used.

The high pressure safety cut-off shown in Figs. 3 and 5 is a device which automatically throws an electric switch so as to cut off the current to the compressor motor whenever the pressure rises unduly in the ammonia discharge line to which it is connected. The automatic "water regulator valve" controls the flow of cooling water to the condenser according to the load, thus cooling down the cooling water used to a minimum. After leaving the condenser the cooling water is conducted to the compressor, and from there flows to waste.

The circulation pump is a small centrifugal pump and the size of motor can be determined by allowing 50 per cent efficiency for the pump which is about what these small size pumps average. The theoretical horsepower for circulating the water is easily obtained by dividing the foot-pounds of work (already calculated as 19,839) by 33,000 or 0.6 horsepower. Dividing this by 50 per cent efficiency 0.6÷.50=1.2 horsepower, say a 1½ or 2-horsepower motor.

QUESTIONS & ANSWERS

A SAFE WAY TO CONNECT TWO BOILERS, TWO WATER BACKS AND CIRCULATION PIPING FOR DOMESTIC SUPPLY.

Editor "Domestic Engineering":—Fig. 1 is a sketch of a range and boiler in basement, also same on first floor, showing hot water line on ceiling of first floor to baths, then returning. Please show me the most successful way to connect up this work. Range on first floor is used daily. The basement range is used about twice a week.

Palm Beach, Fla. F. F. W.

In Fig. 1 is shown the location of both ranges, both boilers, the cold water supply line to them, at cellar ceiling, the hot water distributing main from them at first floor ceiling, and the return lines also at first floor ceiling.

The intention is to heat water for the two bathrooms from either or both ranges also to circulate same to both bathrooms, so that hot water heated from either water backs may be instantly drawn hot at either bathroom. This is all quite plain and is an excellent requirement:

There may be different ways of obtaining the desired results, but probably that shown in Fig. 2 is about the safest and most positive.

If the connections are made this way, we are sure correspondent will obtain satisfaction, if the water backs are able to heat the water fast enough for the demand.

In Fig. 2 it will be observed that each boiler is heated separately by its own water back. But the lower boiler circulates hot water in a secondary way to the upper boiler. The upper boiler is really the primary storage tank. From it all hot water is drawn to the fixtures. Its range is working all the time, so this boiler is entitled to the preference as a point from which to draw the hot supply.

The lower boiler is hot only twice a week.

While it is cold, the upper boiler is hot and goes ahead supplying all the hot water from its own water back. There is then no circulation between upper and lower boilers. The lower boiler remains "dead," and inactive, so to speak, while there is no fire in the lower range. But as soon as fire is started in lower range and water becomes hot in lower boiler, its hot water rises through pipe A and feeds upper boiler through the side tapping, a corresponding quantity of colder water descending in pipe B to take its place.

Thus the upper boiler is heated automatically from either or both ranges, without attention of any kind. No shut-off valves are required in this lay-out, to be opened, when basement fire is burning, and closed when it goes out. Such an arrangement of valves is not desirable. Indeed it frequently is very dangerous. We always prefer valve-less connections at ranges and boilers—for safety—and convenience.

In Fig. 2 it will also be noted that the hot water supply pipes to both bathrooms are joined together over upper boiler and connect directly to it with 1-inch pipe. This enables either bathroom to draw hot water from top of upper boiler only.

The return pipes from each bathroom drop separately at back of upper boiler, connect together near its bottom and are connected to sediment pipe with a check valve.

This check valve prevents cold water from being drawn up return lines and mixing with the hot water when any hot water faucet is opened. It must, of course, have a very light sheet copper or aluminum flapper, which really should hang open all the time except while hot water is being drawn

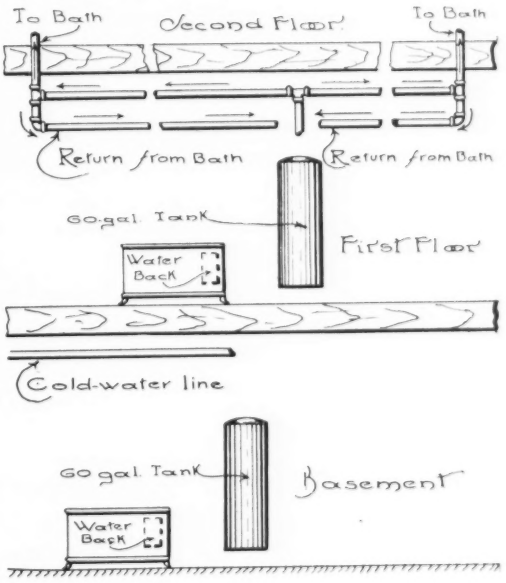


Fig. 1.

at bathrooms. Then the back suction in return lines will automatically close the checks and compel hot water, and nothing but hot water, to flow to the faucet.

In order to have this swing check hang open, it should be inserted on the angle of 45 degrees between two 45-degree elbows.

We may be criticised because we show the cold supply pipe connected to top of upper boiler instead of top of lower boiler. But the criticism will probably be gentle, when we explain our reason for doing so.

Many plumbers would be tempted to connect cold supply to lower boiler instead of to upper boiler, or perhaps to both boilers. But in doing so they prepare a way whereby the upper boiler and its water back might be drained entirely empty, by simply shutting the stop and waste cock on main at cellar wall.

This would certainly be an undesirable and perhaps dangerous proceeding, if the upper range fire was not drawn at the same time.

With the arrangement shown in Fig. 2, it is absolutely impossible to siphon either water back empty, if boiler tube is provided with the usual vent hole at top. That is why we feed the system through top of upper boiler only.

Of course we know that by this arrangement it is quite

possible, although not very probable, that a very large quantity of hot water may be drawn off continuously until top boiler is cold while lower one is still partly hot. But in a short time the hot water in lower boiler will gravitate up and quickly refill upper boiler. That, however, would only happen when all the hot water was quickly drawn out of upper boiler, before all hot water in lower boiler could get into upper boiler.

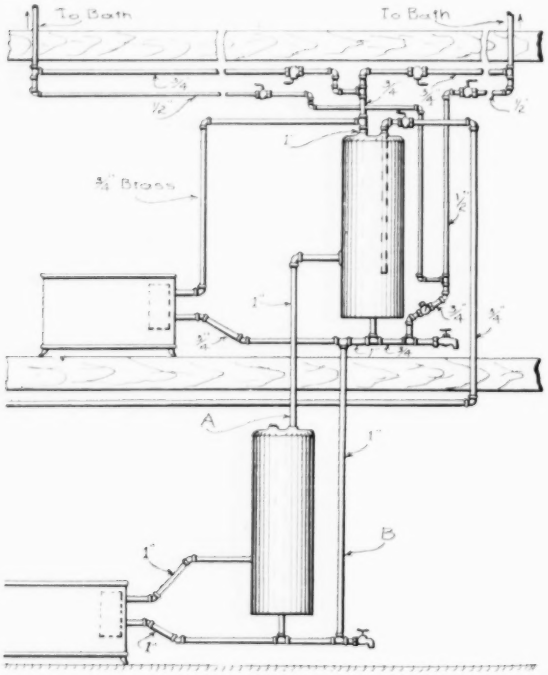


Fig. 2.

The water circulating through A and B is less than that rushing into upper boiler through inner tube. So it is easy to see how upper boiler can be drawn cold while lower boiler may be quite warm. But such a demand for hot water would be unusual, and the shortage, if any, would only be briefly temporary.

CAUSE OF RUMBLING AND POUNDING IN RANGE BOILER.

Editor "Domestic Engnieering":—We have a boiler in an old house that pounds and rumbles when we open cold and hot water faucets. The trouble is not in the gaskets or washers. Kindly let me know what you think is the cause.

Grand Junction, Colo. K. G.

Different things may cause pounding and rumbling sounds in the vicinity of range boilers. But the source of the trouble is in the water back, or at the connections between it and the boiler.

Usually the noise is caused by the production of steam in the water back when the water pressure within the water back is suddenly reduced by the opening of a faucet in the building.

Defective circulation piping between water back and range boiler has a great deal to do with this annoying, although not dangerous, trouble. It frequently allows the water to flow so slowly through the water back that it becomes overheated before it gets out. When in this condition it flashes into steam, agitates the water and causes the noises heard.

One remedy, therefore, is to increase the size of waterback connections. This will prevent the trouble in some cases. It will not prevent it in others.

It will prevent the rumbling in cases where the range boiler is cool enough at top to allow one to place his hand on it without being burned, that is while the pounding is going on.

If, however, the top of boiler is as hot as a steam pipe when water back rumbles, a larger circulation pipe may not remedy the trouble. In this latter case it is necessary to place a brick or something over the face of water back to prevent it from absorbing so much heat from the fire.

Fig. 1 illustrates the conditions referred to. In view A the flow and return pipes between water back W. B. and boiler, are ¾-inch, and supposed to be obstructed more or less with rust, or rough pipe ends. Only a very small volume of water flows from this water back to boiler, and its temperature must be correspondingly high. The temperatures marked on this view are estimated, but are not beyond possibility. The temperature of water in water back is 300 degrees F., which is boiling point at a pressure of about 53 pounds by the gauge.

Suppose that the water pressure in view A, Fig. 1, is 70 pounds static, that is when all faucets in house are closed. The temperature in water back being below the boiling point at 70 pounds, which is, 316 degrees F., will not produce steam while this pressure is on.

But open a faucet, then boiler pressure will instantly drop to five pounds, or perhaps almost to zero, before water gets in motion in service pipe. Then pressure in boiler may rise to, say, 5 to 10 pounds, while water is running at faucet.

When the pressure in water back is so reduced its temperature is above the boiling point at the reduced pressure, and water in this condition can do nothing else than boil in the water back. As it boils and increases its own pressure the steam pushes its way out of water back, then encountering colder water in the boiler at point C, it instantly condenses, making that pounding noise one hears so frequently in improperly drained steam heating systems.

When the faucet is closed, the noise soon stops because the pressure again accumulates in water back.

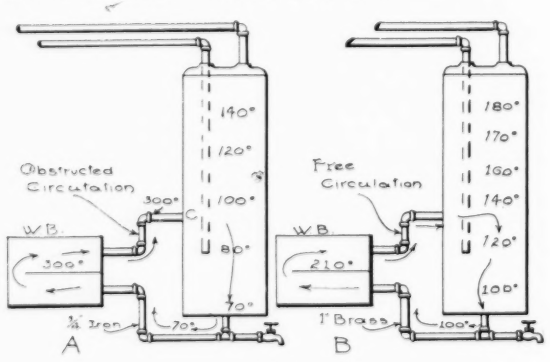


Fig. 1.

What is the remedy? Let the hot water in water back get into the boiler before it is overheated. That's all.

View B, in Fig. 1, shows how this may be done. It also shows how a more uniform and much more desirable working temperature can be obtained throughout. As at A, these temperatures also are estimated, but also are well within the bounds of possibility. Here the waterback temperature is only 210 degrees F., which is lower than the boiling point at atmospheric pressure, and it will require a very intense fire to obtain such a high temperature when 1-inch circulation pipes are used. But even with such a temperature in water back, no steam will be formed, and no rumbling will occur, when a faucet is opened, because the pressure in water back

cannot be reduced enough to cause water to boil in water back at this temperature.

These, then are the fundamental principles. It is up to the plumber to apply them properly.

The view B, Fig. 1, possibly will suggest to correspondent the advisability of overhauling the circulation pipes, making them larger, or easier for the flow of water, which also means the flow of heat from range to boiler.

HOW TO IMPROVE HOT WATER SUPPLY BY CHANGING IMPERFECT CONDITIONS.

Editor "Domestic Engineering":—I am figuring on changing connections on the boiler, shown in Fig. 1, because these present connections do not give proper hot water. I would like to have your opinion about the changes.

St. Louis, Mo. S. R. L.

Unfortunately S. R. L. does not say very much about the system he wants to change. A lack of hot water may be due to different causes. It may be rust in the pipes, which stops circulation. It may be air-pockets somewhere in circuits, which do the same thing. It may be short-circuiting of cold water into hot water pipes. It may be a water back, a coil, or the gas heater, that does not heat the water. It may be almost anything within reason.

As we say that, if S. R. L. had given us some kind of an idea to work on, we probably could have helped him more. As it is, however, we will try to analyze his job and then remedy its defects.

In Fig. 1 we find a hot water storage tank hung horizontally from cellar ceiling. It has two tappings at top and two at bottom, opposite each other. The size of boiler is unknown. This boiler is intended to be heated during winter by a coil or other form of heater supposed to be located in the fire-box of a house heating boiler or furnace.

A gas heater is set alongside the house heater and is intended to heat the hot water tank during summer. Both of these heating agents are connected to a circulation loop

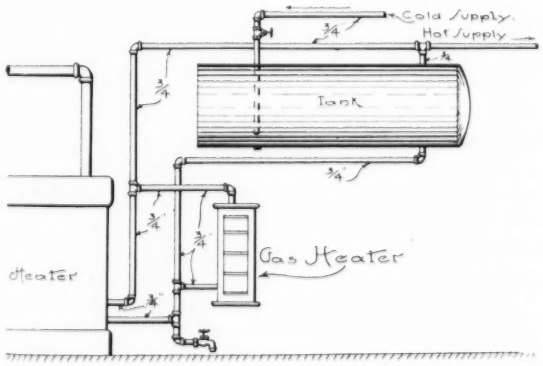


Fig. 1.

which connects with top and bottom of tank. From top of this circulation loop is taken the hot water supply pipe to the house. Cold water enters the boiler at top via an inner tube. It all seems to be quite regular. Many a plumber has seen more suspicious looking systems than this. Still there is something wrong here, or S. R. L. would not wish to change it.

Let us try to find the trouble. The method of inlet of cold water is O. K. That is evident. The method of circulating hot water from house heater coils to tank is O. K. Hot water generated in heater coil will certainly rise and enter top of tank, if the pipes are clear. So if coil in house heater is large enough and properly set among the red hot coals, and if circulating pipes are large enough and clear, there is no doubt about this heater heating the tank.

But on examining the gas heater connections we find something rather suspicious. The flow and return to gas heater are connected straight, and short, into the side of the house heater circulation pipes. This may not appear very bad practice. It may work all right in some cases. But in this particular case it seems to be defective. It might work

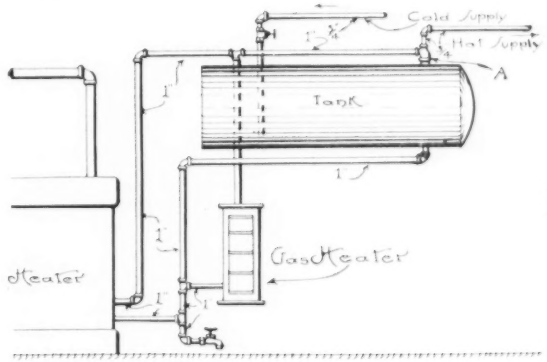


Fig. 2.

O. K., if both gas heater and furnace coil are working together. But when either one is not working there is a liability of either by-passing the other with cold water. This is liable to happen during summer and would seriously interfere with the proper action of gas heater.

Another defect is the small size of the pipes which are all ¾-inch. Fig. 2 is a suggestion for changing this system. The flow pipe from gas heater is extended up and connected at a much higher point. This gives a more positive circulation through gas heater. Each heater will have its own positive circulation without being affected by the other, whether it is in service or not.

We have shown the circulating pipes one size larger than old job, which is advisable if they are iron pipe. If they are brass then ¾-inch pipes might do. But the nipple A should be one inch. If the boiler tapping is larger the nipple should be full size of tapping. This is to allow all hot water to be drawn direct from top of boiler instead of cold water up through either heater, which might be out of service.

In the above we assume that both heaters are sufficiently powerful to provide all the hot water required.

If they are, the connections, shown in Fig. 2, will allow the hot water to be stored in tank drawn at fixtures in a proper manner. If they can not heat the water fast enough, larger heaters must be installed.

This Year's Model.

The fussy old gentleman asked the chance traveling companion: "Have you any children, sir?"

"Yes, sir; a son."

"Does he smoke?"

"Ah, sir, he never so much as touched a cigaret"

"So much the better, sir; the use of tobacco is a poisonous habit. Does he frequent clubs?"

"He has never put his foot in one."

"Allow me to congratulate you. Does he never come home late?"

"Never. He goes to bed directly after dinner."

"A model young man, sir; a model young man. How old is he?"

"Just six months."—Philadelphia Record.

Bookkeeping and Cost-Finding for the Plumber

A Series of Articles Which, When Completed, Will Give the Plumber and Fitter a Complete System of Bookkeeping and Cost-Finding.

By WESLEY A. FINK

Article 10.

Financial Books.

EVERY master plumber "keeps books" of some sort, unless he happens to be as fortunate as a sheet metal worker I know, who always secured cash from his customers by explaining that he was unable to make out a bill, as he could not read or write. As all master plumbers know how to read and write, and cannot collect cash upon completion of a job, but have to do most of their work upon charge accounts, it is absolutely necessary that they keep books of some kind, and bookkeeping, after all, is only putting down in writing what you cannot carry in your head.

In the succeeding articles I want to describe to you how to keep books by the double entry method in the plumbing and heating business, but before starting I want to say that it is necessary for the proprietor or his bookkeeper to grasp the principles and make such adaptations as are necessary to his peculiar needs. That, after all, is "higher accounting"—just adapting plans to suit special needs. It is needless to repeat that the only practical method of accounting yet devised to fit the needs of a plumbing shop is the double entry system.

Double entry bookkeeping shows not only the relations existing between the merchant plumber and those with whom he has business transactions, but also those existing between him and the various kinds of property, expense or things that he possesses, or in which he deals. It is the only mode of keeping accounts that is worthy of being systematized upon scientific principles. It is the only mode worthy of the name of "bookkeeping." The science of bookkeeping is based upon certain principles, which are universal in their application to commercial and other accounts. Hence, if the arrangement of the books differs in different houses, the difference should be accounted for by the circumstances that certain forms are better adapted to the nature and demands of one kind of business than the others. The fundamental principles of the science of bookkeeping are adapted to every set or style of books. More than four hundred years have now elapsed since the first treatise on double entry bookkeeping was published, but although many modifications and improvements have been made since then, by means of which the amount of labor involved has been enormously reduced, the fundamental principles of double entry have remained unchanged.

In double entry we make an entry for every business transaction, making an entry to two or more accounts, according to the number of accounts affected by the transaction. Every time we debit an account for a certain amount, we credit some other account for the same amount, hence *double entry*.

A business transaction is an exchange of values, therefore there must be at least two parties engaged in a transaction, the one giving and the other receiving value of some kind; the one receiving the value being Dr. and the one giving value being Cr. Hence we have the old rule for debiting and crediting. "Debit the account of those to whom we give value, and Credit the account of those from whom we receive value." With regard to things, effects, or property, "debit the thing or property received, or that which costs value, and credit the thing or property parted with, or that which produces value."

The three cardinal rules of double entry bookkeeping should be memorized, and referred to from time to time, until you thoroughly understand them.

Rule 1. When one thing is given for another, the thing received is Dr. to the thing given for it.

Rule 2. When a thing is received and nothing given for it at the time, the thing received is Dr. to the party from whom it was obtained.

Rule 3. When a thing is given and nothing received for it at the time, the party to whom it is given is Dr. to the thing given.

These rules for debiting and crediting, which are the pith of double entry bookkeeping, may be simplified as follows: Debit every account with what it receives, and credit every account for what it parts with, thus:

Rule 1. If we buy from Haines, Jones & Cadbury Co. for cash (because we have no open account with this concern) an enamel iron tub for twenty-five dollars, Merchandise is Dr. to Cash $25.00, and we open two accounts in our ledger, one for merchandise and debit it with the amount or value of the thing received, and open another account for cash and credit for the value of that which is given, or $25.00.

If we sell for cash a porcelain-enameled iron tub for thirty-five dollars, we debit Cash with the amount received ($35.00) and we credit Merchandise for the value of the thing given, $35.00.

Cash Dr. to Merchandise, $35.00.

The ledger entries in these two cases would appear as follows:

Merchandise.

Dr.					Cr.			
1917				1917				
Oct. 8	To Cash	1	25.00	Oct. 9	By Cash	2	35.00	

Cash.

Dr.					Cr.			
1917				1917				
Oct. 9	To Merchandise	2	35.00	Oct. 9	By Merchandise	1	25.00	

Rule 2. If we buy from Haines, Jones & Cadbury Co. on credit, a porcelain-enameled iron tub for $25.00, merchandise is Dr. to Haines, Jones & Cadbury Co. $25.00, and we debit the Merchandise account in the ledger for the value of the thing (bath tub) received, and we open an account for Haines, Jones & Cadbury Co. and credit the company for the value of the thing obtained from it, as follows:

Merchandise.

Dr.				Cr.
1917				
Oct. 8	To Haines, Jones & Cadbury Co.	1	25.00	

Haines, Jones & Cadbury Co.

Dr.				Cr.
1917				
Oct. 8	By Merchandise	1	25.00	

Rule 3. If we sell on credit to Samuel Brown a porcelain-enameled iron tub for $35.00, Samuel Brown is Dr. to Merchandise, $35.00, and we open an account in our ledger for Samuel Brown and debit him for the value of the thing given, crediting Merchandise for the value of the thing parted with, as follows:

Dr.	Samuel Brown.		Cr.
1917			
Oct. 9 To Mdse.	2	35.00	

Dr.	Merchandise.		Cr.
	1917		
	Oct. 9 By Samuel Brown	2	35.00

The following is another application of Rule 3:

We gave Fleck Bros. Co. on October 10, 1917, our note for $100.00 at three months.

In this transaction a promissory note is given and nothing received for it (at the time of giving it), therefore, according to Rule 3, Fleck Bros. Co. is Dr. to Bills Payable $100.00, and we mak the following ledger entries:

Dr.	Fleck Bros. Co.		Cr.
1917			
Oct. 10 To Bills Payable	2	100.00	

Dr.	Bills Payable.		Cr.
	1917		
	Oct. 10 By Fleck Bros. Co.	2	100.00

Received from John Maxwell his note at three months for $150.00 on October 11, 1917. In this transaction a promissory note is received and nothing given for it (at the time), therefore, according to Rule 2:

Bills Receivable is Dr. to John Maxwell $150.00, and we make the following ledger entries:

Dr.	Bills Receivable.		Cr.
1917			
Oct. 11 To John Maxwell	3	150.00	

Dr.	John Maxwell.		Cr.
	1917		
	Oct. 11 By Bills Receivable	3	150.00

The preceding examples are simple journal entries, having but one debtor and but one creditor. The application of the rules to them is therefore very easy. There are other and more complicated cases, in which the process is more difficult. A complex entry is one, in which there are two or more debtors to one creditor, or two or more creditors to one debtor. When there are several debtors and several creditors, the entry is said to be complex in both its terms. The following is an example of a complex entry in one term:

Complex Transaction, Oct. 15, 1917.

Bought of Charles Perkes Co.:	
1 5-foot bath tub	$45.00
1 lavatory	35.00
1 water closet outfit	45.00
Soil pipe and fittings	50.00
Lead pipe, etc.	25.00
	$200.00

Gave in payment for same $50.00 in cash and my note at 90 days for $150.00.

In this transaction material or "merchandise" is received, and cash and my note are given, and the journal entry would be as follows:

Oct. 15, 1917.

Merchandise	$200.00	
Dr., To Charles Perkes Co.		$200.00
For materials bought.		
Charles Perkes Co.	$200.00	
Dr., To Cash		$ 50.00
Bills Payable		150.00
For cash and my note at 90 days.		

The term "Bills Payable" is used to denote notes given, and "Bills Receivable" is used to denote notes received. Some use the terms "Notes Payable" and "Notes Receivable" instead.

From the journal the following entries would be posted to the ledger:

Dr.	Merchandise.		Cr.
1917			
Oct. 15 To Chas. Perkes Co.	2 *	200.00	

Dr.	Charles Perkes Co.		Cr.
1917		1917	
Oct. 15 To Cash	2 * 50.00		
Oct. 15 To Bills Payable	2 * 150.00	Oct. 15 By Mdse.	2 * 200.00

Dr.	Cash.		Cr.
	1917		
	Oct. 15 By Chas. Perkes Co.	2 *	50.00

Dr.	Bills Payable.		Cr.
	1917		
	Oct. 15 By Chas. Perkes Co.	2 *	150.00

*The figures 2 in the small columns denote the page in the journal or other book from which the entries were posted to the ledger.

The three rules for journalizing, which we have given, and which we have applied in the foregoing examples, will enable those, who fully understand them, to dispose of any transaction, however complicated it may be. Read these three rules over and over again until you thoroughly understand them, and refer to them frequently when any transaction occurs, which it may puzzle you how to enter up. But there is one rule which includes these three, and which consequently applies to all transactions. It is this: *The account that receives is debtor to the account that gives.* All practical entries are based upon this rule.

From these rules and examples it will be perceived that bookkeeping by double entry is based upon a principle of mathematical equilibrium, which equilibrium is attained by entering each amount both on the Dr. and Cr. side, and the sum total of the debits should equal the sum total of the credits. Hence this principle requires that every debit must have a corresponding credit and vice versa.

By this time you will perceive that bookkeeping is a matter of some little complexity, and in the past the errors made by bookkeepers were a source of considerable annoyance and loss, and it was therefore but natural that men should devise some means by which such errors should become self-evident, and for this purpose was the double entry method adopted. By recording all the transactions on both sides of the ledger, and comparing the total amount on the Dr. side with the total of the Cr. side, a check is at once obtained; for if there be a mistake, it is unlikely in the extreme that the two sides agree. The test of the correctness of the entries in the ledger is made by taking off a "monthly trial balance," which will be explained later on.

At first sight, however, the advantage seems to be more than compensated by the extra labor, for certainly it nearly amounts to keeping the books twice over. But, notwithstanding this, no subsequent discovery has caused us to abandon the principle of double entry.

Double entry bookkeeping is the only method or system known that not only shows what the profits or losses of a business are, but also how these profits or losses were made, and a few moments' consideration will show that the questions: "How have I made my profits?" or "Where have I lost my money?" are in reality more important than the questions: "What profit have I made?" or "How much money did I lose?" It is here that the special value of double entry bookkeeping is seen.

(To be Continued.)

And the Man Moved On.

The prison visitor on his usual rounds noticed that a new man occupied a cell that had been empty for some time.

"My friend," he began, "may I ask what brought you here?"

"The same thing that brought you here," replied the convict; "a desire to poke my nose into other people's business, only I generally used to go to the basement window."—Chicago Journal.

Plumber Perkins Interviews Farmer Hardcastle

How a Determined Plumbing and Heating Contractor in a Country Town Started a Drive in the Farming Sections to Sell Modern Farm Water Supply Systems and Sanitary Plumbing Fixtures

By WALLACE H. BANCROFT

ALL four cylinders hitting just right, a roadster type of car was humming along over a country road, flanked by wide expanses of ripening corn.

It was autumn, and the farmers were busy, more so than usual, with silo filling and threshing; their teams hauling huge loads of produce to town whence it was shipped to profitable market centers.

The air was surcharged with the spirit of harvest activity, and the lone occupant of the roadster was pleased to observe the excess bounty that nature had lavished upon the man who tills the soil. He almost envied the fortunate lot of the farmer, and if it were possible he would have felt inclined to exchange places with him—giving him his country plumbing and heating establishment in an even trade for a tract of fertile soil. Were such an exchange possible, it might afford the man in the roadster a chance to accumulate tens of thousands, where he had only made hundreds in the plumbing and heating business.

However, it was only a passing fancy, an idle day dream, the kind that is apt to strike us all when we contemplate the prosperity of those engaged in something outside of our own sphere of activity. It is but human, it seems, that men often desire to be or to do something else beside that which they are doing—thinking that thereby success may be less difficult of attainment, but forgetting that the principles of the game are virtually the same in all phases of industry, and that success is generally dependent upon individual initiative plus brains.

The man in the roadster was not actually dissatisfied with his own success as a plumbing and heating contractor, for during the five years he had been in business at Paxton Junction, he had really prospered in his own estimation.

It was merely the sight of the miles of corn which used to sell for 70 or 75 cents a bushel and now was selling for over $2.20, that tended to make him rather envious of the farmer's lot. However, his little fit of envy soon vanished, for he was now approaching the farmhouse of Timothy Hardcastle, one of the old residents of the county, whose father and grandfather had lived and died in that self-same house.

Old Hardcastle was the proud father of a family of five, three sons and two daughters. Graceful and cultured were the latter, having been educated at the state normal school. Two of the sons had graduated from the university and were practicing law, while a third had remained upon the old homestead, assisting in the conduct of the farm.

Driving toward the house, and around a bend in the road leading thereto, a herd of some twenty cows was encountered, grazing along the roadside. A young man, in overalls and jumper and smoking a corn-cob, was perched on a fence rail nearby.

Stopping short, the contractor asked him if Mr. Hardcastle was at home.

"Mr. Hardcastle not bane home yet. I tank he bane coming soon. He vent a lettle vile ago to meet his daughter on de train. She bane coming back from the city today. Can I ask you vat your name bane?"

"My name is Perkins—John J. Perkins, plumber from Paxton Junction," replied the man in the auto.

"I tank it is funny to meet plumber round hare," said the young man, smiling broadly. "I guess there bane no plums to pick on dis hare place. Dis bane no plum farm. It bane regular farm."

"I'm not a picker of plums and I never went a-plumming in my life," said Mr. Perkins rather amused.

"Vell, den vat is a plumber?" persisted the young Swede.

"A plumber," said Perkins, is a man who puts in piping for water supply, installs bathrooms, sewage systems, etc. May I ask if there is a bathroom in Mr. Hardcastle's house and if——"

"Oh, yes, there sure bane bad-rum hare alright," exclaimed the Swede with great emphasis. "Von night the other hired man bring home some rum, and he say—'Ole, vill you have snack?' I say, 'sure,' and I take drop, and I tell you it vas terrible bad-rum. I nearly go vild—jus like crazy Indian. I guess Mr. Hardcastle don't vont any bad-rum in dis house. Have you got some to sell?"

Perkins laughed. "Well Ole, I see you don't understand me at all. It's no use trying to make you understand what a plumber is."

"Vell, maybe you bane right," said Ole. "You know I bane greenhorn annyhow and I navar bane to school much."

"Well, how do you hired men around here manage to keep yourselves clean?" asked Perkins.

"Vell, you see it bane like this," said Ole. "Ven ve hired men take a wash all over, ve have to take pailful of cistern vater and big sponge. Den ve go into voodshed or cowbarn or maybe corncrib and hare ve take vash. In summer time ve use hose on each other and ve get cleaned jus like a horse. In the morgan at 4 o'clock ve take vash pan and vash by the pump in de yard."

"That is certainly a mean way to keep clean," observed Perkins. "It is no wonder that hired men are so hard to keep for any length of time. Farmers don't make things comfortable enough for them. They are not treated right."

"By Jimminy, I tank you bane right, Mr. Perkins," said the Swede. "I vas tanking myself that maybe I yump my yob soon. I don't like it hare. Ven I vas in Minnesota on farm der, I sleep in the house and vash in the kitchen. Hare I sleep in the barn and vash in the yard. The pay bane putty good but the house bane fixed in bad shape—vhy skall hired man all his life vash by pump in yard in winter and summer?"

The young Swede had no sooner concluded his remarks, than the tooting of a horn was heard around the bend in the road, and presently a seven-passenger car

carrying old man Hardcastle, Mrs. Hardcastle and the Misses Hardcastle, drove up, and immediately Ole ran to the driveway where he stood ready to swing open the big gate.

Old man Hardcastle paid but little attention to Perkins as the car whirred by and toward the farmhouse. He was too much engrossed in conversing with his daughters—particularly the one who had just arrived from the city, to be fully conscious of the presence of anyone to see him.

Perkins had planned to launch a drive for business. The drive, he hoped, would be effective enough to cause old Hardcastle to loosen up and spend some of his surplus wealth for a modern water supply system and an up-to-date bathroom. Hardcastle was reputed of late years to be "well fixed," and the plumbing contractor was quite certain about the report. Hence the trip to that gentleman's domicile.

Perkins drove right through the big gate. Arriving at the farmhouse he caught Hardcastle's eye, just as the latter was about to enter the house, his wife and daughters having preceded him.

"Hello, stranger, what can I do for you?" asked Hardcastle.

"My name is Perkins, plumbing and heating contractor, Paxton Junction."

"Ah, yes," said Hardcastle. "I've seen your ads in the Paxton Post and I believe you sent me a booklet about farm water supply and plumbing fixtures. Now I reckon you've come out thinking you're going to sell me something of the sort."

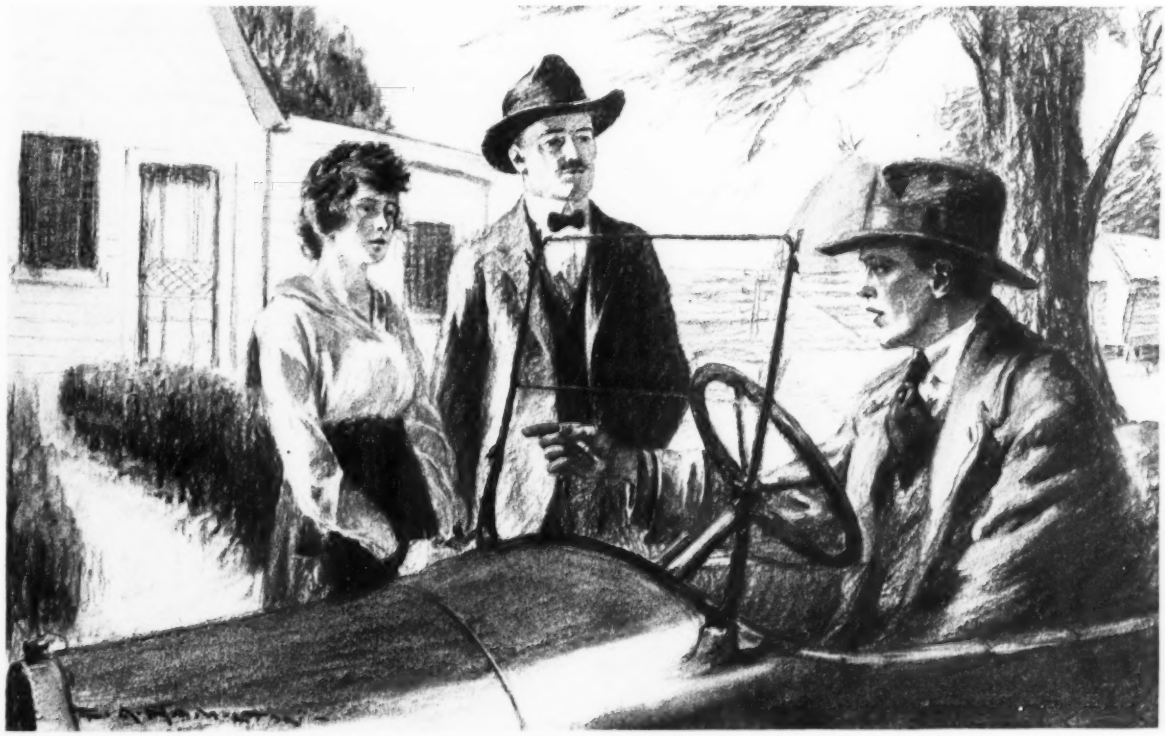
"Well, at any rate, Mr. Hardcastle, I've come out to answer any objections you may have to the service I would like to install here," replied Perkins. "We can at least discuss the proposition."

"That's fair enough," said Hardcastle. "I'm not opposed to talking with a business man from Paxton Junction, because talk in itself doesn't cost anything, except on one occasion last fall when I went to hear Bill Bryan talk at a Chautauqua. It cost me just $2 net to hear Bill talk about the Price of Peace—no, gol darn it, I'm wrong, it was the Prince of Peace, that's it."

Perkins laughed. He took mental note of the fact that Hardcastle wasn't perhaps quite as hard-headed as his name might imply.

"Now to be frank with you Mr. Perkins," continued Hardcastle, "I have no use for any of them new-fangled contraptions. I know you plumbers call them things sanitary engineering. However that may be, I know that the people of yesterday, who knew nothing of such devices, lived a darned side longer than a lot of folks of today. My grandfather and my father lived on this farm. They drank out of the old oaken bucket or the rusty tin dipper; they bathed in the old mill creek or swam in the old swimmin' hole. They lived to a ripe old age and were contented men. Here, right near the house I have a good well and right there near the cow barn is another one. Now why in Sam's hill should I spend money for something I can do without. A modern water supply may of course have its advantages, but then, as I said before, my father and grandfather operated this farm on the old-fashioned plan and they made money; they were contented; they enjoyed life here and they got on just as

(Continued on Page 202.)



"Well, do you know why?" said Perkins. "To be frank with you, it occurs to me that you don't make things comfortable enough for your employes. Wages, you know, aren't everything. Employes like to work in an environment with a few attractive features."

PATRIOTISM in the PLUMBING and HEATING TRADES

SMASHING THE KAISER NUISANCE.

A PLUMBING and heating contractor in a western city was discussing the war and its relation to the business situation. He regretted that the present world conflict, which was precipitated by Germany, should have produced an unsettled condition in the realm of industry. He referred to the Kaiser as the biggest nuisance in history. He declared that he was astounded to think that the Hohenzollern family has been able to "put it over" on the German people for so many years. He was puzzled over the fact that kaiserism has been tolerated in Germany where so much education and progress were supposed to exist.

"The Russians were always credited with being a stupid and backward people," said this contractor. "I used to believe that such was the case until one morning I picked up my morning newspaper and discovered that they had 'smashed the czar nuisance.' They simply seized little Nick by the collar and kicked him head over heels out of the country. The Russians finally woke up to the fact that emperors and their 'divine' right buncombe should be effectually squelched—stamped out. The Russians saw that these things were the greatest obstacles to the nation's progress.

"I do not think that the German people are slower than the Russians to discover that they are being imposed upon by the Hohenzollern gang. I would not be surprised to awake some morning before long and learn that the better judgment of the German people had prevailed and that they had unceremoniously 'tied a can' to Wilhelm and his entire gang of trouble-makers.

There is no doubt that war and bloodshed have always been associated with ambitious royalists of the Kaiser stripe. History is full of wars, which were precipitated by monarchial rulers in order to further selfish motives and to vaunt their own colossal egotism.

It would be the biggest democratic reform that Germany has ever known, if the Hohenzollern family were reduced to the same status as the Romanoff family. Both of these families are more ornamental than useful. The Russians decided that the Romanoff family was a very high-priced luxury and that its maintenance cost the nation many millions annually. Russia arose in her collective might and said: "Why should I support a group of royal parasites?"

That is the feeling which may develop in Germany. Already there are indications that the people of Austria are groaning under the burden of the war and the tyranny of the absolute monarchy which prevails in that country.

There is no question but that Germany will be brought to its knees by the allies. Her arrogance and bluster will be put to shame. She may rest assured that, with the United States co-operating, there will be no compromising.

Three republics are now fighting autocratic Germany. England although monarchial in name, is essentially a democratic nation. Hence four democracies are arrayed in active combat against the Kaiser nuisance.

The military and naval forces of the United States will soon be ready to strike a tremendous blow. The regular army, the national guard and the men selected for service will presently aggregate one million and five hundred thousand.

Thus the power of America will be felt in Europe. The waves of Prussian militarism will feel the great strength of the democracies of the world. The French have held, the British are attacking. We must help.

Pershing, saluting at the tomb of Lafayette, said in simplest words: "Lafayette, we Americans are here!" That is the spirit which will dominate the American armies in France in the final drive to smash effectually the Kaiser nuisance.

It is the twilight of Kaiserdom. In its fight to exist it is making its final stand, fighting an apparently winning fight at times. The world opposes it, however. It is doomed.

"STANDARD" WAR GARDENS.

In line with President Wilson's proclamation asking the people to do their "bit" in the way of increasing the growth this year of farm and garden produce, the Standard Sanitary Manufacturing Company had its plant in Tiffin, Ohio, inaugurate a system of "war gardens." In front of its plant the company has a plot of eight acres, which is being held for future developments, and it is in this plot that the war gardens were made. These eight acres were ploughed and subdivided into one hundred and twenty-six garden plots, each measuring forty by sixty feet. The free use of this ground was offered to all of the employes in the plant and as a result eighty-five took space and cultivated "war gardens." The

The War Gardens of the Employes of the Standard Sanitary Manufacturing Co., in Front of Its Plant at Tiffin, O.

accompanying engraving shows the plot of ground ploughed up and ready for its first cultivation, with the factory in the background. The eighty-five men who undertook to cultivate this plot worked most earnestly and enthusiastically, and for amateur farmers they secured a great output. The work was done early in the morning and in the evening, and every assistance was rendered by the company.

OUR ROLL OF HONOR.

H. Kent Gilbert, junior partner of the plumbing and heating firm of J. R. Stratton & Co., Salem, O., was recently called to the colors. He is now in training at Camp Sherman, Chillicothe, O., where he is anxiously awaiting a chance to call on the Kaiser.

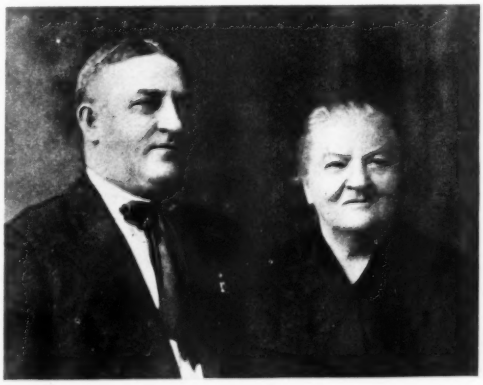
Thomas Maddock's Sons Co., of Trenton, N. J., now flies the service flag with twenty-two stars. At two patriotic demonstrations at the company's plant recently, the twenty-two men, who are to serve the country, were given a hearty farewell, and each was presented with a memento of good will and friendship from his associates. The following list of honor of men, either now in the service or about to be called, represents practically every department in the plant as well as the home and out-of-town offices. Now in the service: A. Theil, E. B. Lane, H. Standiford, John Bitzer, Jr.; H. S. Maddock, G. Johann, E. Rutter, Sherman Chamberlain, L. Cartlidge, Louis Ortonski, F. Rulius and R. A. Wordemann. The following are subject to call at twenty-four hours' notice: Joseph Theil, J. G. Crannage, John Slack, E. Schrum, A. White, William Biddulph, John Ford, J. Eardley, C. Cartlin and J. Hewitt.

DOING THEIR "BIT" AT HOME.

Fred B. Mueller, vice-president of the H. Mueller Mfg. Co., of Decatur, Ill., made the largest individual subscription to the second Liberty Loan in Decatur, taking $25,000 of this issue, and this in spite of the fact that he subscribed for $30,000 of the first Liberty Loan.

Every employe in the plant of the Leader Iron Works, Decatur, Ill., is the proud owner of at least one bond of the second Liberty Loan, due to good work on the part of T. E. O'Brien and Charles B. Irish, of this company. In referring to this fact the "Decatur Review" says, "We salute them, they are all one hundred per cent men."

Doing her bit for Uncle Sam at the age of seventy-nine, Mrs. Gilmore, mother of Stephen H. Gilmore, manager of the St. Louis office of the Kohler Co., and of John Gilmore, of the John Gilmore Plumbing Co., also of St. Louis, is spending much of her time knitting uniform socks for the Sammies, particularly her nephews, who are in the United



Stephen H. Gilmore and His Mother, Mrs. Gilmore.

States Army. She has recently finished and sent one pair to her nephew, William T. Dolan, 12th Regiment Engineers, Railway Expeditionary Forces In France, Company B. She is also knitting socks for Ray and Ollie Dolan, brothers of Wm. T. Dolan, who are at Camp Funston. Her recreation, when she is not serving Uncle Sam as a sock manufacturer, is motoring and going to church. The accompanying picture of Mrs. Gilmore and her son Stephen, known popularly as "Steve" among men of the trade, was taken recently. Despite her advanced years, Mrs. Gilmore is enjoying good health. Her eyesight is exceptionally good, considering her age.

The Chicago Faucet Co., of Chicago, reports that every man in its office and plant purchased Liberty Loan Bonds, and that one of the first to purchase one was an employe who was born in Austria.

THE WATER SUPPLY ON THE WESTERN FRONT.

Supplying water for drinking and cooking purposes, etc., in time of war is often a problem. Without water an army would be laboring under a severe handicap. In fact it would

British Soldiers with a Day's Supply of Water.
Photo from Underwood & Underwood, N. Y.

be practically impossible to carry on any degree of effective warfare without access to a water supply.

Water is obtained in different ways on the western front where the French and British armies are pressing hard against the Teuton lines.

In some of the rear line trenches of the allies, water for drinking and cooking purposes is conveyed by means of piping, which is laid a few feet under ground and which connects with large artesian wells close at hand. These wells are equipped with apparatus for pumping the water into the piping system.

Such systems are generally possible only in the rear line trenches where the danger of damage to the piping by shell fire is less frequent than is the case in the front trenches.

Where piping of water is not to be had, it becomes necessary to carry it in cans or pails, as shown for instance in the accompanying picture. Here British troops are shown, returning from a "Water-Bottle Filling Point." The men fill the cans at this point or station and the water usually lasts at least a day.

Southampton, N. Y.—The Martin Plumbing Corporation has been incorporated with a capital of $1,000. The incorporators are: F. McDermott, George A. Rice and Patrick M. Kelly.

Alexandria, Minn.—A. W. Bjorklund has secured the contract for the installation of plumbing, heating and ventilating systems in a new school building at Cyrus, Minn. The contract amounts to $8,000.

President L. McNamara Issues Important Message

Urges All Members to Co-Operate to Make N. A. M. P. a Greater and More Helpful Organization Than Ever Before

L. McNamara.

NOW that he has been in charge of the National Association of Master Plumbers for some time and has gotten a line on what he wants to do, President L. McNamara, of St. Louis, Mo., this week issued a statement outlining the policies of his administration and calling on all members of the association to co-operate in an effort to make the organization a greater help to members than it has ever been before.

In his statement he outlines an educational program which he hopes to carry out and which, he believes, from results accomplished in the Missouri association by similar work, will be of real and lasting benefit to master plumbers everywhere, assisting in eliminating certain abuses which have been introduced into the business and aiding the master plumber to assimilate and put into practical operation better methods of doing business. President McNamara's message follows:

"As your newly-elected president I extend most hearty greeting and unusual good news. Our litigation ended, our by-laws having been amended to meet the exactness of the Department of Justice, we now have a clear bill of health. We are entering upon a new era and in defining the policy of our national association I submit that we propose to strictly follow the plan outlined by the Federal Trades Commission of the United States, and by this policy improve our business. Trade associations such as ours are advocated and encouraged by our government, as is proven by an excerpt taken from the report of the chairman of the Federal Trade Commission, which reads as follows: 'Trade associations should not only be encouraged to increase their membership, but should be furnished by the government with complete statistics in their particular lines, and be assisted in every way to develop and stabilize the industry they represent.

"'There should be a greater degree of organization and of helpfulness in the lines of trade and industry, so that American business may be welded into a commercial and industrial whole. The part of the government is to co-operate with the business men, on request, and to bring about the results that will benefit business and hence promote our National welfare.'

"A crisis, such as we have passed through, is one of the best things that ever happened to our National organization. It brought us to the realization that we, individually and as an organization, must respectively do something for ourselves. It awoke our latent powers, and we will arise like a Gibraltar, and, as a result of the experience gained during the last three years, we shall grow bigger and stronger for good. No greater exemplification of loyalty has ever been shown by any organization than that displayed by our members during the course of our litigation. You are to be commended for your heroic action while under fire; that is, the spirit which brings success. You stood nobly by your guns and are now in a position to reap the rewards justly due to you. Our National association is the heart of our business. The ranks and files of our membership throughout the country are the arteries that supply the thoughts that make the heart pulsate for you, and we want you to feel the heart beats. We must have coalition and still greater coalition; our National association is prepared to serve you, if you will only make your wants known. If you have any suggestions that you think will benefit the members of our craft, let me know them, I want to know them. Don't wait for our annual convention to bring your thoughts to our attention, but communicate with the National office at once, so that the idea you may suggest may be promptly considered, and if beneficial, disseminated among our entire membership. Let us not be selfish, but prompted by the desire to help one another; that in reality is what we are organized for, and so I ask each and every member of the organization to spread this doctrine.

"As your president for the term of 1917-1918, it falls upon my shoulders to define a policy for the future of our grand organization. Much has been said about the plan suggested by the Federal Trade Commission, but up to the present date no action has been taken to put a National plan into operation. The main plank of my policy and plan of operation, is that of education— business education, and for the time being I will briefly point out and call to your attention several of the lines of education, which for the current year, the National office will work on for the benefit of its membership. The subjects to be treated are divided into groups (here follow five groups which will help in making your business pay), as follows:

"Publicity.—Give publicity to all details of our business, such as price discrimination on the part of jobbers, substitution on the part of members and others, and of underhand methods employed by some members.

"Cost.—Taking off quantities correctly. Items entering into cost. Compilation, or gathering items. Recording experience as relates to cost. Insisting on a reasonable length of time in which to make up your estimate and bid. Standardizing your estimate sheets.

"Character.—Point out the way to improve, as education without character is no education at all.

'For when the one Great Scorer comes
To write against your name
He writes—not that you won or lost,
But how you played the game.'—T. M. K.

"Salesmanship.—Courtesy and patience. Study character of customers. Learning favorable opportunity. Knowledge of your own business. Conception of business in general. Use of better grade of fixtures, etc. Standardized specifications. Thorough pre-understandings.

"Efficiency.—Make the study of your business a 'hobby.'

Integrity and industry. Energetic perserverance and patience. Organization of your business. Analysis of your business methods. Study of executive habits. Cultivating 'team work.' Standardizing of contract forms. Be a prompt collector, that you may be a prompt payer. Insist on good 'workmanship' and honest execution of plans and specifications. Disclose substitution upon the part of others.

"Now is the time to start a campaign for an increased membership. Our National per capita has been reduced to the original $2 per year. All fines and costs in connection with the trials have been paid, and plans have been outlined to pay the individual expenses of those members who attended the trials. Financially we are in a healthy condition, and we want to show the world that we are proud of our organization, and that we will not only equal our membership of the past, but will far surpass it, and that we are a progressive organization of business men. The proceedings of the convention will be in your hands at an early date. You are urged to familiarize yourself with the revised by-laws which are printed in the latter part of the proceedings. In this prospectus I appeal to you. Let each member do his bit. I ask you to resolve to carry out the resolution to bring in one new member during the next six months, and in so doing you will not only advance his welfare, but your own also, and thus strengthen our National association for the common good of us all.

"L. McNamara, President,
"National Association of Master Plumbers."

"WITH ONE GOOD EAR AT THE RECEIVER."

By W. W. Hughes.

We were on a little week-end pilgrimage and we pulled into a certain prosperous Minnesota town just at the noon hour. When starting from home that morning we found that the starting and lighting system on one of the cars was out of commission, and accordingly, when we pulled into the town of X, we located the A.B.C. Garage, drove in on the floor, got hold of the boss of the place and told him our troubles.

He called to one of the employes and asked him to look over the car and locate the trouble. Instead of complying with the order, the man replied that he was busy on another car and could not leave it. And it is an actual fact that the proprietor of this garage asked six of his men and received the same answer from each of them. The seventh man left the job, that he was on, and fixed up our car in the course of the next hour.

Of course, there are two sides to this question. Perhaps these men were on important work and could not get away. If they were, the boss should have known it and then it would not have been necessary for him to ask. On the other hand, the command of the boss should be the law of the shop, and the men would be justified in leaving any task, that they might be on, to do his bidding, leaving the settlement of any controversy, which might arise, to the boss himself.

The next day we had a similar call to make, the timer on one of the machines having broken. We ran into a garage and the boss called to one of his men. That man left the work that he was on immediately and fixed up our car.

We will leave it to the readers to guess, which garage we will visit when down that way again. We may need a tire, some gasoline or some oil, but regardless of what it may be, we know who will get the business.

Perhaps, some of our plumbing and heating shops are run in just these two ways. Plumbing and heating appliances must be in working order if they are to render efficient service. And plumbing and heating establishments are "service depots." We render a service, second only to that rendered by our water and light concerns and sewage disposal systems. They provide the supply and the waste, but we must provide the necessary appliances to make them usable, and we must keep them in repair.

There is an old saying that we never miss the water, till the well runs dry, and so it is with our customers. They never miss the plumber, till the plant won't work. Then they want service, not tomorrow, not next week, but immediate service. It is needless to add that the efficient establishment will render that kind of service.

While in the second garage mentioned above, a mighty clean looking chap came in. He was armed with a couple of Stillsons and a plunger. He looked like a plumber, and when questioned modestly admitted that he was one. We asked if he was in Jones' old place, knowing that Jones had passed on some year or more ago, and he replied that he had bought out the old Jones' place and had run it for awhile, but found that it was too large for his needs, accordingly he had purchased a smaller store and was keeping a smaller stock, and felt that he was a great deal better off than when he was rattling around in the larger store. He added that the "overhead would have eaten him up if he had stayed in the old Jones' store."

Which merely goes to show that the discussion regarding overhead has not been in vain. If it merely makes the fellows realize that they have an overhead which must be proportioned to the business which they are doing, the campaign started by Morgan at Galveston will be well worth the effort.

Obituary

William Englebert Conrad.

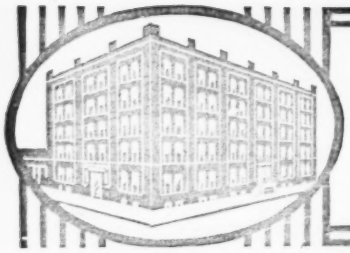
William Englebert Conrad, a retired master plumber, died at his home in Milwaukee, Wis., on Thursday, October 18, in his 76th year. Mr. Conrad came to Milwaukee from German in 1858. Two sons and one daughter survive him. He leaves an estate valued at $320,000.

Ernest R. Munger.

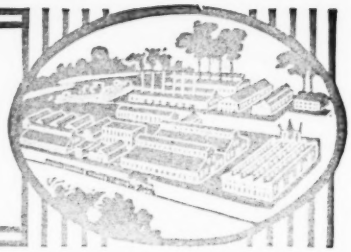
Ernest R. Munger, of the plumbing firm of Munger & Munger, of Pasadena, Cal., died suddenly from heart failure on Sunday morning, October 14th, in his 38th year. Mr. Munger was born in Iowa and moved to the Pacific Coast about fifteen years ago. His widow, father and two brothers survive him.

P. C. Desmond.

P. C. Desmond, who retired from the plumbing business about two years ago, died at his residence, 2733 West Lake Street, Chicago, on Wednesday evening, October 17th, in his 68th year. His death was attributed to asphyxiation. It appears that a gust of wind blew out the light in the gas mantle in the parlor, where Mr. Desmond was asleep. The funeral was held Monday, October 22nd, from the home of his sister. Mr. Desmond was one of Chicago's old-time master plumbers and a member of the Chicago Master Plumbers' Association up to the time he retired from business. His son, E. V. Desmond, succeeded him in the plumbing business at 2818 West Lake Street, Chicago.



Among the Wholesalers and Manufacturers



GOVERNMENT IN NEED OF SOLDER, IRON PIPE FITTINGS AND BRASS AND COPPER PIPE AND TUBING.

The government has just announced that it desires bids for furnishing a large amount of solder, brass and copper pipe and tubing, and iron pipe fittings, to be delivered at various navy yards. Some of the proposals for these supplies will be opened at 10 a. m., November 6, and others at 10 a. m., November 13. The Bureau of Supplies and Accounts, Navy Department, Washington, D. C., will be glad to furnish interested parties full particulars upon request, mentioning schedules 1537, 1543, 1547 and 1548.

C. A. BLESSING CALLED BY DEATH.

C. A. Blessing, of Philadelphia, founder and owner of the plumbing and heating supply business bearing his name, died at his home in Glenside, Pa., on Sunday, Oct. 21st, in his 76th year. Mr. Blessing was born in Coeppengen, Germany, November 28, 1841, and came to this country in 1859. He remained in New York a year or two before he came to Philadelphia. He had learned his trade as a coppersmith before leaving Germany. He started in business in Philadelphia at Second and New Streets, moving later to Sixth and Berks Streets, and still later to Sixth and Randolph Streets, when he associated himself with Mulliken & Feather and built the plant which still stands. He patented the first one-piece, copper-lined bathtub, which was one of the principal factors responsible for his success. He also patented the first mixing faucet, sanitary plunger closet, and closet with lugs for seat attachment, and a number of other sanitary appliances. He also manufactured copper boilers, plumbers' woodwork, plumbers' brass work, cast iron soil pipe and fittings, etc. The original soil pipe foundry was on the fifth floor of the present factory building, but later removed to Salem, N. Y. Mr. Blessing was a pioneer in the plumbing supply line and was instrumental in training a great many of the men who are leaders in the plumbing supply line today. The late M. R. Stambach, of the old firm of Stambach & Love, and the late Henry Fleck, of Fleck Bros., both received their training in the plumbing supply line under Mr. Blessing's guidance. A son, C. A. Blessing, Jr., and two daughters survive him.

WAR LIMITS THE ESTABLISHMENT OF NEW INDUSTRIES.

National Chamber Committee Calls Council of National Defense Recommendation Acid Test for Any New Industry and Predicts the Possibility of Even More Drastic Action.

The recommendation of the Council of National Defense that no new industrial enterprise should be undertaken at this time which will not help win the war will be of far-reaching effect to business men, according to a bulletin issued by the committee of the Chamber of Commerce of the United States co-operating with the Council of National Defense. The committee declares every man who wants to see the United States victorious has now this recommendation as an acid test to apply to any new enterprise or undertaking.

Looks for More Sweeping Regulations.

In fact this action, according to Waddill Catchings, of New York, chairman of the committee, should prepare the minds of the business men for similar action in regard to the full operation of those industries not essential to the national defense and to the consumption by the public of luxuries and non-essentials. "In the course of time," Mr. Catchings says, "no one need be surprised if during the war the use of labor and materials for all unessential purposes is made impossible by regulation or statute."

The following is the recommendation in full as made by the Council of National Defense:

Considerations for New Industries.

"Every effort that this country is capable of making should be applied to bring the war to a speedy and successful conclusion. The resources of the country in a general way may be said to consist of men, money and material, and during the period of the war any new enterprise or undertaking should be tried and justified by the test: Will the men, money and material so applied best contribute in this way to the winning of the war?

"New enterprises which are not fundamental to the efficient operation of the country's necessary activities should not be undertaken. This will not result adversely upon business or conditions of employment because every man and every resource will be needed during the war. All effort should be centered to help win the war."

There is no ambiguity about this recommendation, according to the National Chamber Committee. Men who are, considering new enterprises, public improvements, dwellings, factories, in fact, industrial work of every description, should be guided by the question of whether or not the undertaking is to be a factor in the victorious conclusion of the war. This is the concluding message to the commercial leaders of the country.

THE SEASON'S LAST TOURNAMENT OF THE CENTRAL TRADE GOLF ASSOCIATION.

The elements mourned on Tuesday, October 23, the day of the final 1917 tournament of the Central Trade Golf Association, held at the Stanton Heights Golf Club, Pittsburgh, Pa. The day started out dark and dreary, and by noon it started to rain, in grief over the fact that this was the last tournament of 1917.

But no bad weather could depress the ardent spirits of the well-known Pittsburgh golfers, however, and they smiled at the elements. They donned their golf togs, lit their pipes, called their caddies, and hiked forth to the links with great gusto. President George H. Bailey was on hand among the early ones, as was Secretary and Treasurer Billy Bryar, and the wide-awake Tournament Committee, E. H. Eggleston, Jr., T. R. Kenney and T. L.

Lewis. It is true that Mr. Eggleston asked the forgiveness of the club at the first tee, while he recited the following original poem:

Of all sad words the pen can utter,
The saddest are these: "I am no putter."

But the golfers forgave him for this, and the play started.

Stanton Heights is a rather hilly course, and, as W. A. Myler, treasurer of the Standard Sanitary Mfg. Co., once said, "It takes a billy-goat to play on Stanton Heights."

The players were divided into two classes, those with handicaps up to and including 15, for Class A, and those with 16 and over, for Class B. The qualifying round, to be completed by 12 o'clock noon, 9 holes, medal play, full handicaps. Match play, 16 players in each class, having low net scores in qualifying round, to be put into flights of 8 and continue at match play under three-quarter handicaps. Prize for winner of each flight in each class. The consolation round was 9 holes, medal play, full handicaps, with prize for low net score, no player to win more than one prize. Thus it will be seen that the contest was for blood, as there were two silver trophies to be fought for, as well as numerous lesser prizes.

The finals for the silver pitcher, presented by O. T. Carson, of "Domestic Engineering," were played by C. K. Brown, W. B. Bryar, D. A. Casey, E. H. Eggleston, Jr., Hugh McM. Jones, T. L. Lewis, C. W. Long and R. M. Romig. The finals for "The Plumbers' Trade Journal" silver cup were played by E. E. Brosius, John Graham, Frank S. Kaulback and H. Talbot Petersen.

In the qualifying round, A. H. Bowman had high score of 42. In the match play, first flight, Vetter won over Collins, 3 and 2. In second flight, Eggleston beat Long, 1 up, 10 holes. In the consolation round, 9 holes, medal play, Frank S. Kaulback came out on top with a net score of 38, and in the final round for the cup, John Graham beat Mr. Kaulback, 3 up.

In the finals for the silver pitcher, presented by O. T. Carson, of "Domestic Engineering," R. W. Romig, of the Fairbanks Co., walked away with the prize, winning over Hugh M. Jones, 2 up and 1 to play.

A merry time was enjoyed by all the golfers at the dinner in the evening, when the prizes were awarded. While the rain swished against the windows outside, and Old Boreas howled his wildest, inside the cheerful club room, the golfers feasted and made Rome howl, recounting how they missed this stroke and that, how they would have made it in bogie or better, if their caddie had not sneezed or the wind had not howled, or if a freight train on the B. & Q. had not given them a nervous shock, etc.

President George H. Bailey gave a pleasant talk, reviewing the year, dwelling on the pleasant events of the various tournaments, and he was followed by other members of the club, who spoke in appropriate vein. Redman Dillon, of the New York office of the American Radiator Co., was present as the guest of E. H. Eggleston, Jr., manager of the Pittsburgh branch of the company. Mr. Dillon made a brief speech which was well received, and offered a prize to be contested for during 1918. Prizes were also offered by the Bailey-Farrell Mfg. Co., the Standard Mfg. Co., the Kelly & Jones Co., the Fairbanks Co., and "The Plumbing News"; all to be contested for in 1918.

The scores follow herewith:

Qualifying Round—Nine Holes, Medal Play, Full Handicaps.

	Gross.	Handicap	Net.
T. L. Lewis	49	3	46
W. B. Bryar	53	8	45
R. W. Romig	50	3	47
Jos. A. Weldon	53	6	47
T. R. Kenney	57	4	53
A. E. Hummel	59	0	59
E. J. Vetter	55	5	50
E. H. Eggleston, Jr.	49	0	49
C. W. Long	49	4	45
G. H. Bailey	50	3	47
A. D. Knapp	59	4	55
H. M. Jones	58	7	51
D. A. Casey	46	0	46
W. L. Collins	59	8	51
Henry J. Bailey	45	2	43
W. F. Ingalls	59	7	52
W. N. Sauer	58	5	53
J. G. Steitz	63	13	50
A. H. Bowman	49	7	42
F. A. Haring	45	1	44

First Flight, Match Play, Nine Holes.

In the elimination round Casey beat Weldon, 1 up. Collins beat Bowman, 2 up. Knapp beat Ingalls, 1 up. Vetter beat Bryar, 5 and 4.

In the semi-final round Collins beat Casey, 1 up. Vetter beat Knapp, 3 up. In the final round Vetter beat Collins, 3 and 2.

Second Flight, Match Play, Nine Holes.

In the elimination round Long beat Sauer, 1 up. Steitz beat H. J. Bailey, 2 up. G. H. Bailey beat Kenney, 3 up. Eggleston beat Hummel, 1 up. In the semi-final round Long beat Steitz, 1 up in 13 holes. Eggleston beat G. H. Bailey, 1 up. Final round, Eggleston beat Long, 1 up, 10 holes.

Consolation Round, Nine Holes Medal Play, Full Handicaps.

	Gross.	Handicap	Net.
F. S. Kaulback	42	4	38
A. D. Knapp	58	4	54
W. N. Sauer	54	5	49
W. B. Bryar	54	8	46
A. H. Bowman	51	7	44
W. F. Ingalls	57	7	50
E. E. Brosius	55	6	49
R. N. Romig	48	3	45
H. M. Jones	58	7	51

"The Plumbers' Trade Journal" silver cup trophy, match play resulted as follows: Graham beat Brosius, 6 up, 5 to play, and Kaulback beat Peterson, 1 up, in the semi-final round. In the final round Graham beat Kaulback, 3 up.

O. T. Carson's "Domestic Engineering" trophy, match play resulted as follows: In elimination round, Romig beat Bryar, 1 up; Long beat Eggleston, 1 up; Lewis beat Casey, 2 up; Jones won from Brown by default. In semi-final round Romig beat Long, 2 up; Jones beat Lewis, 1 up. In the final round Romig beat Jones, 2 up, and 1 to play.

GERMAN ECONOMIC ORGANIZATION.

Reviewing the progress in the field of economic organization in Germany during the war, the Neue Zuricher Zeitung, of Zurich, Switzerland, says that the chief characteristic has been the tendency toward compulsory and voluntary syndication of industrial concerns.

Compulsory syndication has been demanded by the government to secure economy, in view of the scarcity of material and the shortage of labor, while voluntary syndication has been suggested and carried out by the parties interested by way of preparation for the prospective economic war, and in order to facilitate the return of peace conditions in the economic sphere, though in some cases this action has been in response to suggestions and hints on the part of the government. This was the case with the renewal of the coal syndicate, in which all mining firms hitherto remaining outside are now included. The sole reason for the smooth progress of the negotiations was the threat of compulsory syndication in the event of nonagreement.

The great union in the chemical industry, on the other hand, has been voluntary. This combine, which is for a period of 50 years, is primarily of a defensive nature. The constituent works retain complete independence and freedom of action, but profits will be pooled, all manufacturing experiences exchanged, and all products produced in

at least two places. This arrangement, it is hoped, will do much to further the exploitation of new discoveries and to promote technical progress, with the result that the position of the German chemical industry in the world market will be strengthened.

Agreements with the same object have recently been made between the dyeing and explosives group of industries. Details of the compact have not yet been made public. It is only known that an agreement has been made concerning the peace-time production and the sale of such articles as have always been produced by both groups. The explosives group consists of a combination of the dynamite trust and the powder group, which before the war were accustomed to divide profits according to a definite scale.

Since the outbreak of the war the largest German explosives factory, the Dynamite A. G. Nobel, in Hamburg, has been the center of German dynamite interests. An examination of the list of firms combining to form the German explosive trust and the powder trust, with those forming the aniline combine, shows that the German chemical industry is closely united.

The same tendency is observable in the central combines of the German wholesale trade, the shipping trade, etc., which have arisen during the third year of the war, and also in the efforts now being made toward the further syndication of numerous small industries—e. g., the rope, leather, iron small wares, and enamel industries. The pooling tendencies do not, however, meet with approval everywhere. In the leather industry, for instance, there is keen opposition between the heavy branches, which are in favor of a trust, and the fine branches, which are against it.

In the iron industry syndication proceeds slowly but surely, and not without official support. A bar-iron syndicate is being formed, but it has not yet won over some important concerns, on whose adherence the permanence of such a combination would depend. Efforts are now being made to reestablish the rolled-wire combine, which was dissolved soon after the outbreak of war. On the whole, the syndicate idea has gained ground in the by-products industry much more quickly and distinctly than had been expected. But it is not probable that all the recently formed syndicates will continue after the war, unless government action is taken to insure that they should continue, at any rate for the transition period, in the interests of national economy.

In addition to the combines properly so called there have been numerous amalgamations and fusions of individual concerns, which are further evidence of the general tendency toward the development of large organizations in German economic life. Numerous individual men of business are retiring into private life, their places being taken, as a rule, by large companies and combines. This concentration has been further promoted by measures taken or proposed within the states, such as the proposal to tax turnover. Were such a proposal carried into effect, it would probably give a great advantage to the large enterprises which carry on the whole range of production from the raw material to the finished product, so that the turnover is not subject to frequent charges. Such measures have brought about a similar concentration in trade, as they have resulted in many liquidations of smaller firms.

The role played by the banks in these fusions, amalgamations, and absorptions is much less important than in peace times; firstly, because the undertakings have, as a rule, made such large war profits that they can dispense with the assistance of banks; and, secondly, because the banks themselves are undergoing a process of concentration, which is, however, being carried on below the surface. The chief reason for this tendency toward concentration is that the problems confronting German finance on the conclusion of peace (the problems connected with supplies of raw materials, resumption of issue, reconstruction of credit organizations, etc.) can be accomplished only by institutions of extraordinary capacity.

INCREASE IN DOMESTIC RATES OF POSTAGE.

The following increases in rates of postage, according to Postmaster General's Order No. 755, dated October 3, 1917, became effective November 2, 1917:

Upon all matters of the first-class postage shall be charged at the rate of 3 cents for each ounce or fraction thereof; and drop letters shall be mailed at the rate of 2 cents per ounce or fraction thereof, including delivery at letter-carrier offices.

(A drop letter is one addressed for delivery from the office at which it is posted. There is no drop rate on any matter except letters.)

Postal cards shall be transmitted through the mails at a postage charge of 2 cents each, including the cost of manufacture.

It shall be lawful to transmit by mail, at the postage rate of 2 cents apiece, payable by stamps to be affixed by the sender, and under such regulations as the postmaster general may prescribe, written messages on private mailing cards, such cards to be sent openly in the mails, to be no larger than the size fixed by the convention of the Universal Postal Union, and to be approximately of the same form, quality and weight as the stamped postal card now in general use in the United States.

James F. Conran, general manager of the Standard Sanitary Mfg. Co., of Pittsburgh, Pa., has just returned to that city after a several days' visit in Chicago.

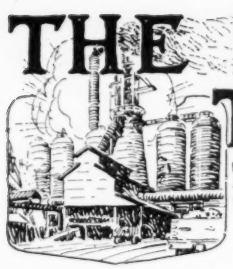
Jack "Vitro" Redmond, of the W. A. Case & Son Mfg. Co., Detroit, Mich., is making an extensive eastern trip, just to enjoy again the sensation of bringing home a "few cars."

M. Howard has just been appointed Pacific coast representative for J. B. Wise, Inc., of Watertown, N. Y., with headquarters at the Monadnock building, San Francisco, Cal. Mr. Howard will cover California, Oregon, Washington, Utah and Colorado.

W. J. Erskine, of Salt Lake City, formerly connected with the Kohler Co., has accepted a position as salesman for the Chicago Faucet Co., of Chicago. He will cover western coast territory comprising a number of states. He recently left Chicago for Denver from where he will travel further west.

Howard T. Gates, vice-president and general manager of the Atlantic Radiator Co., has just returned to New York City from the company's plant at Huntingdon, where he spent the best part of a week with President Richard C. Schwoerer in an endeavor to hurry up the installation of the new equipment at the company's plant. It is expected that, when this new equipment is is operation, the capacity of the plant will be more than doubled.

THE METAL MARKET AND TRADE REPORTS



Steel and Iron.

There is but little buying of steel by concerns other than those engaged on the government's requirements at present. The demands for steel for shipbuilding and construction work of all kinds are steadily increasing, and the specifications are so varied as to leave very little of anything in the shape of semi-finished or finished steel products uncovered. The outside customer finds himself far down on the list, and some distance from his requirements. Steel used to go to the highest bidder, prior to the establishment of the government prices, but the situation is changed so that in the distribution of steel the price paid for it counts for nothing, and the allotment is made on the urgency of the requirement in respect to the needs of the government. Heavy tonnages of structural steel are being placed by the government, to be used in government buildings at various places.

Consumers of pig iron are showing more interest and are covering their needs over the first half of 1918 at tentative prices based on No. 2 foundry at $33 a ton, furnace. This price is subject to revision after January 1st, but it is not thought likely that any material change will be made, especially in the nature of an advance. Only basic and No. 2 foundry irons have been definitely established, but differentials for other grades have been determined by private arrangement in order to expedite business. The foundries are all very busy, and show their anxiety to provide for future delivery by placing contracts for several months ahead, though no advantage in the way of price can be gained by so doing. The outlook is not promising for a liberal distribution of iron as demand seems to be constantly in excess of supply. Much depends upon the coke and labor situations. If no improvement develops a shortage would result that would prove serious. Following are prices current for round lots from first hands. The price of pig iron as established by the government is now $33 per ton for basic and No. 2 foundry. Prices for other grades have not yet been determined but have been adopted subject to revision on official announcement:

No. 2 X Northern foundry, New York	$33.95 to $34.20
No. 2 X Northern foundry, Buffalo	33.00
No. 2 X Southern foundry, Birmingham	33.00
No. 2 X Southern foundry, Cincinnati	35.90
No. 2 Southern Ohio Coke, Cincinnati	37.00 to 37.50
No. 2 X Northern foundry, Chicago	33.00

Copper.

The market in copper is quiet without any great change developing, although brokers and dealers had hoped some solution would be found for the tangle in which the small consumer and distributor find themselves. There is but little now that may be said about copper, which would enlighten the industry outside the large producing interests. What the government needs are to be are known only to the Copper Producing Committee and to the government itself. This committee only is aware of the quantity of copper from various sources available for national and private commercial purposes, and how far the general public is to be served can only be guessed at by the quantity allowed on contracts. Considerable scrap copper and small quantities of free metal is being picked up by consumers through brokers to cover their immediate needs. It is expected that there will be enough copper to meet all needs, but the surplus will not be large. The basis of all dealings of course is fixed at 23½ cents.

Tin.

Tin is firmer, although prices have advanced somewhat since last reported in these columns. It is hard to get, as a result of the new British regulation, which requires that the name of the consumer, for whom the tin is bought, accompany the order. As a result the importers must first sell before they can purchase, and certain concerns, which had been favored by a liberal allowance of spot tin through the good graces of the London Rubber and Tin Export Committee, are now not so singularly blessed, since a scarcity has resulted in an advance of 1¾ cents a pound, within the week for Straits, which is quoted firm at 63¼ cents. Banka has also advanced in sympathy with Straits and because of the difficulty in finding vessel room from Batavia. It closed at 61¼ cents.

Lead.

A cut of a full cent a pound in the price of lead by the principal producer, as reported last week, caused a decided sensation in the market. This brought the price down to 5½ cents a pound, New York delivery, and 5.42½ cents a pound, East St. Louis. The cause of the rapid decline from 11 cents in August is attributed to accumulation of stock in producers' hands. Government requirements fell a long way short of estimates furnished also, and the accumulation lead to competition, which did not stop until the 5½-cent limit was reached.

Spelter.

The market was very quiet last week and for want of buying support as well as for statistical reasons is weak with a declining tendency. The last quotation was 7⅞ cents, New York, for spot.

Chicago Old Metal Market.

Chicago wholesale dealers' prices are nominally as follows:

	Buying.	Selling.
Heavy yellow brass	14½ to 15 cents	16 cents
Brass, light	11½ to 11¾ cents	12½ cents
Red Brass	20 to 20½ cents	21½ cents
Yellow brass turnings	13½ to 14 cents	15 cents
Medium brass	12½ to 13½ cents	14½ cents
Brass clippings	15½ to 16 cents	17 cents
Block tin pipe	50 to 52 cents	53 cents
Copper, heavy	21 to 22 cents	23 cents
Copper, wire	21 to 22 cents	23 cents
Copper, light	19 to 19½ cents	20½ cents
Cocks and faucets	16 to 17 cents	18 cents
Lead, heavy	4¼ to 4¾ cents	5 cents
Tea lead	4 to 4¼ cents	5 cents
Zinc scrap	4¾ to 5¼ cents	6 cents
Mixed babbitt, as to grade	5¾ to 6¼ cents	7 cents
Solder joints	10½ to 11 cents	12 cents
Solder foil	13 to 13½ cents	14¼ cents

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UNDER THE GROUND

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National Pipe & Foundry Co., Attalla, Ala.
Reading Foundry & Supply Co. - - - - - - - - Reading, Pa.
Salem Brass & Iron Mfg. Co., Salem, N. J.
Sanitary Co. of America - Linfield, Pa.
Somerville Iron Works - New York, N. Y.
Standard Foundry Co. - Anniston, Ala.
Superior Mfg. Co. - - Bessemer, Ala.
Union Foundry Co. - - Anniston, Ala.
Weiskittel & Son Co., A. - Baltimore, Md.
Wetter Mfg. Co., H. - Memphis, Tenn.
Abendroth Brothers - Port Chester, N. Y.
Alabama Pipe & Foundry Co. - - - - - - - - - Anniston, Ala.
American Foundry & Pipe Co. - - - - - - - - - Penns Sta., Pa.
Anniston Foundry Co. - Anniston, Ala.
Bessemer Soil Pipe Co. - Bessemer, Ala.
Campbell Mfg. Co. - - Gadsden, Ala.
Casey-Hedges Co., The, Chattanooga, Tenn.
Central Foundry Co. - New York, N. Y.
Charlotte Pipe & Foundry Co. - - - - - - - - - Charlotte, N. C.
Coosa Pipe & Foundry Co. - - - - - - - - - Birmingham, Ala.
Crown Pipe & Foundry Co., Jackson, Ohio
Gadsden Pipe Co. - - Gadsden, Ala.
Haines, Jones & Cadbury Co. - - - - - - - - - Philadelphia, Pa.
Johnson Co., J. D. - New York, N. Y.
Krupp Foundry Co. - - Lansdale, Pa.
Medina Foundry Co. - - Medina, N. Y.
National Foundry Co. of N. Y., Inc. - - - - - - - - - Brooklyn, N. Y.

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No corrosion – No menace of leaking sewage and sewer gases – No tearing out of floors and walls after pipe is installed

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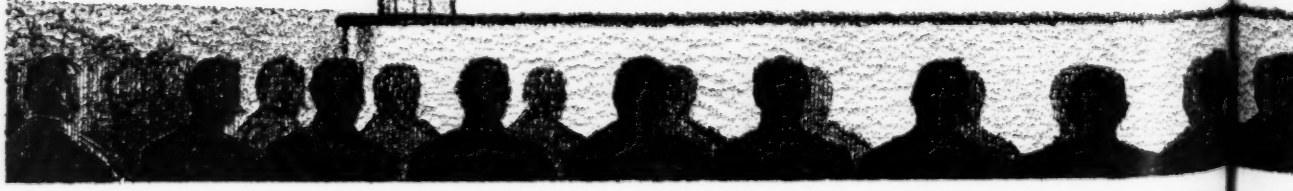
No pollution under cellars – No stoppage by tree roots – No danger of breakage by jar or settlement – No costly replacements

CAST IRON SOIL PIPE LASTS LONGER THAN THE BUILDING

Wrought Pipe, 4 in. nipple, rusted out in a few years, causing bad leak over room in hotel.

SOIL PIPE removed from old Astor House shows no deterioration after 80 years' service.



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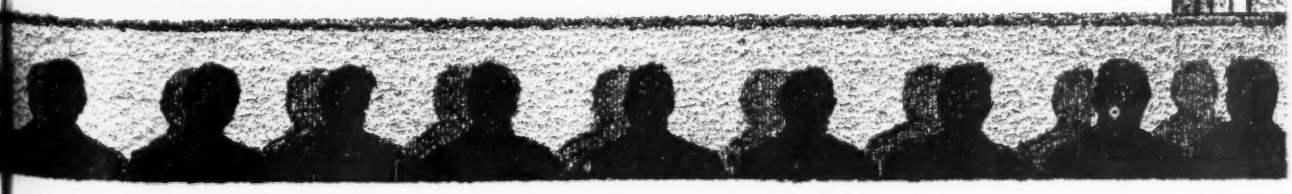


AMONG THE PLUMBING AND HEATING CONTRACTORS

Illinois

Chicago and Vicinity.

The regular meeting of the Chicago Master Plumbers' Association was held at Schiller hall, Schiller building, on Friday evening, November 2, with a large attendance. President Bernard Gause, of the Illinois Master Plumbers' Association, and his executive committee were present. All of the officials of the state organization made addresses.

The North and West Side Master Plumbers' Pleasure Club will give a bunco party to its members and friends at the organization's headquarters at the corner of Wellington Street and Lincoln Avenue on Monday evening, November 26. There will be attractive prizes awarded to the winners of games. The officers of the club are expecting a large attendance as all previous events of this kind have been well patronized. The bowling season of the club is now in full swing. Its teams will continue to meet for practice every Monday afternoon. These meets alternate between Mattis's bowling alleys on Fullerton Avenue near Fortieth Avenue and Olson's alleys on Milwaukee Avenue near Fortieth Avenue. There will be four teams this year, and they will compete for prizes to be awarded at the end of the season.

B. J. Farwell, of 410 Sherman Street, has been awarded the contract for the installation of the plumbing system in the remodeling of a cold storage building at 4033 Normal Avenue. Total estimate cost of remodeling $100,000. The architects are Henschien & McLaren of 37 West Van Buren Street.

Harry Peckham, Jr., of 209 Milwaukee Avenue, will install the heating system in an addition to a church, to be erected at a cost of $15,000, at Hermitage and Montrose Avenues.

The plumbing contract for a bungalow to be built at a cost of $3,200, at Sixty-fourth Street and Spaulding Avenue, has recently been awarded to E. Stevenson & Co., of 6142 South Western Avenue.

A. M. Stander, of 3939 South Kedzie Avenue, will install the plumbing in a flat building of three apartments to be built at 4436 South California Avenue.

A. Alardyce, of 5450 North Clark Street, has secured the contract for the installation of the plumbing system in a residence and garage to be built at a cost of $5,000 at 5700 Windsor Avenue.

The Haas & Hilton Co., of 3607 Wentworth Avenue, will install the plumbing system in a new machine shop at 2426 Lowe Avenue.

George Hazard, of 3652 Emerald Avenue, has been awarded the contract for the installation of the plumbing in a soap factory, to be constructed at a cost of $90,000, at 1319 West 32nd Street.

Noble & Thumm, of 2313 Lincoln Avenue, have been awarded the contract for the installation of the plumbing system in an apartment building of 54 flats, to be erected at a cost of $140,000, at 4251 Broadway. Paul F. Olson, of 127 North Dearborn Street, is the architect.

Samuel Kersten, of 554 West Jackson Avenue, will install the plumbing in a factory, to be built at a cost of $100,000, at 1802-1810 South Kilbourne Avenue. The heating system will be installed by the Phillips-Getschow Co., of 130 West Kinzie Street.

E. J. Benning, of 1124 Belmont Avenue, has recently been awarded the contract for the installation of the plumbing in a garage, to be constructed at a cost of $15,000, at Ashland Avenue and 24th Street.

Schampel & Dougherty, of 173 West Washington Street, will install the heating system in an apartment building, to be erected at a cost of $20,000, at 1459-1461 Farragaut Street. The plumbing contract was awarded to William Morant, of 1478 Catalpa Avenue.

Many a man, who has a reputation for being truthful, finds that he is doubted after returning from a fishing expedition. Fishing and prevarication appear to be popular forms of outdoor sport. Hence it has been the custom with some sportsmen to carry kodaks, in order to prove that they can fish and still remain truthful. George H. Kirk, a live and enterprising master steamfitter of Chicago, returned from a fishing trip near Shelby, Ind., some weeks ago. He had been doubted by his friends after his return from previous jaunts. He therefore had a snapshot taken of practically every one of the big fish he caught. The accompanying picture shows George, as he steps triumphantly from his gasoline launch, holding aloft a spanking fine 12-pound pickerel. Catching a pickerel of this size is no laughing matter. Note the serious expression on the fisherman's face. Let those, who doubt Mr. Kirk's right to the title of "mighty fisherman" step out and say something.

George H. Kirk.

The Sixth National Conference on Housing, which was held recently in Chicago, was attended by hundreds of delegates from all parts of the United States. The convention had a threefold purpose: First, by consideration of papers, discussions and conferences to advance the country-wide cause of housing reform. Second, to acquire a knowledge of the housing conditions which prevail in the conference city. Third, to suggest to the city, in which it meets, some solution of its special housing problems. "The stimulation of Chicago to realize better housing remains for the future, which alone can disclose whether having listened to the rescue of other cities from the perils of the slums, we shall continue to keep in service shacks that long ago ought to have been

scrapped." Thus spoke Chief Sanitary Inspector Chas. B. Ball, of Chicago, who addressed the conference. "If the eighty organizations who acted as hosts to the conference, and the citizens who attended its sessions, will set themselves to the task, Chicago can shortly be made a city far-famed for the houses and homes of a prosperous and contented citizenship."

Charles F. Eisentraut, of 2014 North Oakley Avenue, who has been engaged in the plumbing business for several years, has the sympathy of his friends in the trade in the death of his wife, which occurred recently.

Indiana

Indianapolis.

The plumbing and heating contractors of Indianapolis rallied to the support of the Second Liberty Loan by buying approximately $15,000 worth of bonds. In addition to personal subscriptions a number of them showed their loyalty and patriotism by assisting their workmen in taking bonds on the weekly payment plan.

Contracts will be awarded soon for the plumbing and heating in two large apartment buildings in Indianapolis. The Irvington Realty Co. is planning to erect a three-story apartment, to contain thirty-six, three-room flats, in Irvington, and the Peter Pan Realty Co. will erect a two-story apartment building at 1706 North New Jersey Street.

J. C. Dunn & Co., of 938 North Illinois Street, have received the contract for the installation of the plumbing in the new addition to the Hassler Motor Car Co.'s factory and warehouse at 1535 Naomi Street.

The Vestal Plumbing Co., of 1124 Central Avenue, was the successful bidder for the plumbing and heating contracts on the new $100,000 apartment building that is to be erected on Pratt Street, between Delaware and Alabama Streets, for the Pratt Realty Co. The building will be three stories high and will be modern throughout.

Freyn Bros., of 41 West Michigan Street, have been awarded the plumbing and heating contracts on the new apartments that are being erected at Central Avenue and Sixteenth Street, for the Canterbury Realty Co. The building will contain sixty modern apartments.

Callon Bros., of 24 South Alabama Street, started this week to install the plumbing and heating systems in the second airplane building that the Nordyke & Marmon Co. is erecting at its plant, Nordyke and Kentucky Avenues.

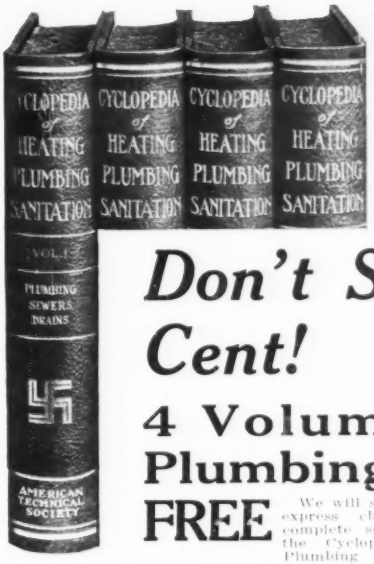
Other Cities in the State.

The Lane-Pyke-Werkhoff Co., of 215 North Tenth Street, Lafayette, has received the contract for the installation of plumbing and heating systems in the new auditorium and gymnasium that is to be erected at Greencastle for the B. of E. Work will be started at once.

P. B. Arnold & Co., of 213 East Main Street, Fort Wayne, have received the plumbing contract on the new $15,000 engine house that is being erected there. The contract for the heating system was awarded to A. Hattersley & Son, of 210 East Main Street, Fort Wayne.

Smith Bros., of La Grange, were the successful bidders for the plumbing contract on the town hall and fire station that is being erected there. The heating contract was awarded to the La Grange Hardware Co., also of that city.

Victor C. Knauth, of 215 Busseron Street, Vincennes, will do the plumbing in the new Carnegie Library that is being erected at Seventh and Seminary Streets.



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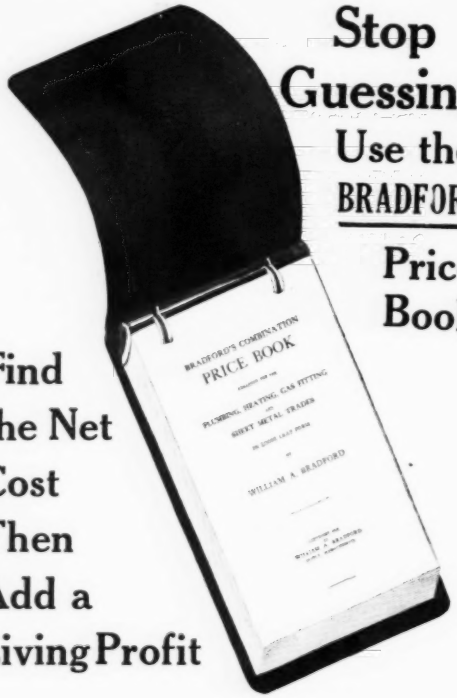

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Department C
5 Maple Street Quincy, Mass.

Massachusetts

Boston and Vicinity.

Much interest is being manifested among master plumbers as to the nature of the opinion, which is expected from the attorney general, on the question of the right of journeyman plumbers under the present law to do plumbing work without the supervision of a master plumber and to employ helpers. At the recent meeting of the State Association the secretary was instructed to request the attorney general to interpret the law on this point.

Secretary Armstrong, of the Master Plumbers' Association of Boston and Vicinity, is a firm believer in the value of advertising. Recently in the Association's bulletin Mr. Armstrong referred to the need of a fireproof safe for the association headquarters and invited members to contribute one. Within a week the office had its safe, State President J. Preston Perham being the one who answered the advertisement.

The recent talk before the Boston Master Plumbers' Association, by Elmer S. Stack, has aroused much interest in the plumbing fraternity, and an even larger attendance is looked for when he gives the second of his series next Tuesday evening. At his first appearance Mr. Stack gave some very practical information in connection with the problem of heating water and storing it in a range boiler. His talk was illustrated by stereopticon slides. He declared that many range boiler explosions were due to excessive pressure in range boilers due to the overheating of water in the appliances attached to the boiler. His explanation of why there were not more boiler explosions with disastrous results was that the pressure in many instances had strained the boilers to the leaking point or cracked the water jacketed tank heater, or the water front, or in some way caused a leak which relieved the pressure before it became great enough to cause the boiler to explode. By means of the lantern pictures Mr. Stack showed just how water, when heated, expands and in many instances forces the water from the range boiler out into the street main. He then showed what would happen, if a check valve were used on the main, and he also illustrated how excessive pressure sometimes is relieved by the drip from the ball cock. The object of Mr. Stack's talk was to show how quickly pressure increased and how easy it was for a boiler to explode with consequent serious damage to property and plumbing fixtures. He then discussed the value of a relief valve and pointed out the desirability of having the installation of hot water systems, using range boilers, governed by city ordinance and the work subject to inspection.

Although many plumbing and heating contractors in Boston are far from being as busy as normally, there is a constant increase being shown in building operations, and these should soon reach the point where the increase will be reflected in plumbing, heating, lighting and other industries. Among the several new jobs under way or contemplated in Boston at the present time are the following: Fire station at East Boston to cost $35,000; new ward building for Boston city hospital; eight-room school house for city of Boston to cost $140,000; sixteen-room schoolhouse in West Roxbury district to cost $190,000; theatre building in Roslindale to cost $45,000; eight-story store and office building in Back Bay district; sanitary building on North End playground to cost $35,000; and ten residences on Chestnut Place, to cost $140,000.

Other Cities in the State.

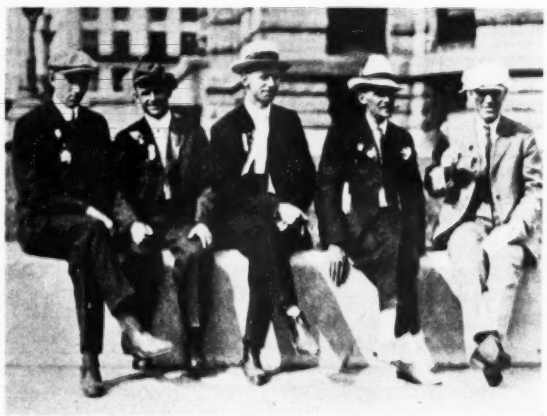
Mayor Z. E. Cliff, of Somerville, in conference with the building commissioner of that city, recently has awarded contracts for the erection and completion of a new junior high school building to cost about $90,000. The heating and ventilating contract was awarded to J. J. Hurley & Co., of Boston, at their bid of $14,323, and the plumbing to William P. Kane, of Boston, at $2,960.

Edward Carron, of Chester, Mass., has opened a plumbing shop in the Masonic building in the adjoining town of Huntington. He had been associated with his father, Joseph Carron, in the plumbing business at Chester for some time.

Bigelow & St. Onge, of Northboro, have secured the contract for installing modern plumbing in a new building being erected in that town for the Taylor Mfg. Co.

Contracts recently have been let for a contagious hospital at South Hanson for Plymouth county. Lynch & Woodward, of Boston, will install the heating and ventilating systems.

William B. Donahue, a master plumber of Brockton, recently filed a petition in bankruptcy, scheduling liabilities amounting to $2,833 and assets of $100.



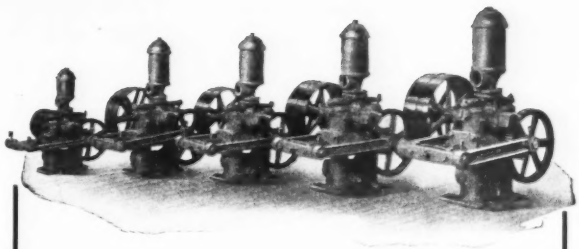
Ralph Kelley, President of L. B. Brass Co., Peabody, Mass.; E. G. Haude, of Syracuse, N. Y.; A. N. Van Denburg, Syracuse; D. J. Hanley, Clovis, N. M., and E. Mautz, also of Syracuse, N Y.—From "Domestic Engineering" Photo, taken at the Evansville Convention of the National Association of Master Plumbers.

Washington

Seattle and Vicinity.

A proposed plumbing code for the city of Seattle, introduced in the city council more than a year ago at the request of the Plumbers Union, was taken up by the Public Safety Committee recently, and the hearing postponed for two weeks, when serious objections were filed by the Board of Appeals of the Building Department. In its report the Board of Appeals states: "In general the proposed ordinance provides elaborate and unnecessary methods of installing plumbing. No attempt is made to simplify methods or eliminate unnecessary equipment; the unreasonable requirements of the present ordinance are contained in the new, together with others more exacting and unreasonable; methods and fixtures in effect and used in the principal cities of America are absolutely forbidden in the proposed ordinance."

The carpenters boycott, in force for weeks in Seattle,



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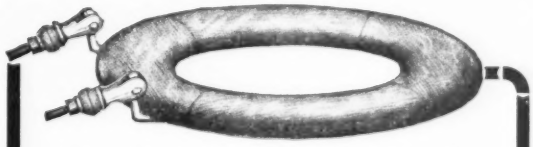

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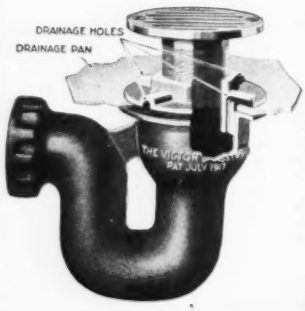

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has been lifted by house carpenters, so far as ten-hour lumber is concerned. A great many builders and contractors have signed the agreement to use only eight-hour lumber. The Union will make every effort, to see that eight-hour lumber is used wherever it is available, but will not stop work with ten-hour lumber when that only is available.

Architect James H. Schack, of Lippy Building, Seattle, is preparing plans for the four-story store and loft building to be erected for J. W. Goodwin & Co at a cost of $25,000. The structure will be 30x112 feet.

Great Northern Construction Co., Seattle, has received the contract for the construction of the 1½-story, 60x108 feet, brick and concrete building to be built for a local film exchange at a cost of $25,000. Plumbing and heating contracts have not yet been awarded.

Owners of nearly one hundred buildings, including the County-City Building, in Seattle, and a number of the largest office buildings in the city, may be required to install new heating plants before the end of the present year, if a bill now before the city council is passed by that body. The bill proposes to cancel a permit issued by the Board of Public Works to the Puget Sound Traction, Light and Power Company to install and maintain a steam pipe in James Street, between 2nd and 3rd Avenues, and directs the corporation counsel to bring an action for trespass against the company, and force it to remove its steam pipes in the district between Madison and Main Street, and Third Avenue and Elliott Bay. The ousting of the company from the district would mean that practically all of the larger buildings in the city, including the King County and City of Seattle's joint building, would have to install separate heating plants. It is estimated that it would cost King County between $30,000 and $40,000 to equip its building, and necessitate the excavation of another basement under the present one used in its entirety for garage purposes. The Traction Company now heats this building at a rate just one-half the lowest rate charged to other consumers for the same service, and this rate was one of the provisions contained in the franchise. The company's franchise expired on February 19, 1915. Before that date, the company made application for renewal of the old, or granting of a new franchise, and suggested that the amendment of other steam franchises might be made to cover the district. When the matter was referred to the franchise committee, the franchise was agreed upon in every particular, except that the Traction Company was asked to grant the municipal street car lines common user rights on its Third Avenue lines and the Jackson Street loop. This the company refused to do, and it has been operating in that district, giving steam heat, without a franchise since that date.

Plans for the new Ravenna Boulevard Presbyterian Church, Seattle, have been completed, and bids will be called for at once. Structure will be built in two units at a total cost of $25,000. The first unit will be 57x75 feet, one-story and full basement, to cost $10,000.

Seattle Central Labor Council has purchased a lot adjoining its present temple at 7th Avenue and University Street, on which will be erected the first unit of the proposed $500,000 structure. The first section will be either four or six stories high. A. L. Haley, of Peoples Bank Building, is preparing the plans.

Architect J. L. McCauley, New York Block, Seattle, is preparing plans for a proposed 3-story addition to the Bush Hotel on Jackson Street, to cost $150,000. Plans will be ready for bidders in about 60 days.

F. D. Black, of the Black Manufacturing Co., Seattle,

will erect a four-story apartment house on Rainier Avenue, to cost $60,000. Structure will be of concrete construction, 60x100 feet.

Seattle has accepted the privilege of providing a Red Cross base hospital for the United States Army, and the work of raising $50,000 to cover cost of the work has been started. C. D. Stimson is director of the Red Cross Northwest Division.

Tacoma and Vicinity.

C. R. Hildom, 6837 South Thompson Street, Tacoma, has received the contract for the construction of four cottages for the Maryland Realty Company on J and Adams Streets. Separate bids will be called for heating and plumbing.

P. C. Creso, of Tacoma, will erect a five-story apartment building at South G and First Streets. Bids will soon be called for.

John S. Baker and associates have leased a site on Ninth and Market Street, Tacoma, where they will build a theater to seat 2,000 persons. All contracts will be awarded at an early date.

The Hurley-Mason Company, general contractors for Camp Lewis, American Lake Cantonment, near Tacoma, has received orders to rush work on 175 additional buildings at the camp. Six training battalions are to be housed. The buildings will include 97 barracks, officers' quarters, warehouses, mess houses, corrals and brigade headquarters.

Architect Roland S. Bornek, National Realty Building, Tacoma, is preparing plans for a 90x120 feet, three-story moving picture theater building, which is to be built at a cost of $50,000.

County Commissioners of Spokane County plan the erection of the proposed $80,000 infirmary as the first building work of the county in the spring. Plans are under preparation, and contracts will be let during the winter.

Col. John Hetterman, of Louisville, Ky., represented in Spokane by the Arthur D. Jones Co., plans the erection of a $500,000 to $600,000 hotel at Main and Monroe Streets, Spokane. Structure will contain 400 rooms and will call for a large number of baths.

Plans for installing a new heating system in the city hall in Aberdeen have been abandoned, and the old heating system will be repaired.

Architect S. D. Ford, Lyon Building, Seattle, has completed revised plans for a 1½-story clubhouse for the Country Club at North Yakima. The building will be equipped with showers, modern plumbing and heating system, and will cost $20,000.

The State Board of Control at Olympia has called for bids for the construction of a hospital building at the State Soldiers Home at Orting, Wash., to cost $46,500. The building will be two stories, of brick and mill construction. Bids will be taken on general construction, plumbing and drainage, heating and ventilating.

Idaho

The Administration Building of the Soldiers' Home at Boise, which was destroyed by fire recently, causing loss of $50,000, will be rebuilt immediately.

George Meffan, of Nampa, has prepared plans for a modern apartment building to be erected in that city. The building will be of brick, containing eight apartments of four and five rooms each. The structure will be equipped with modern plumbing and heating systems.

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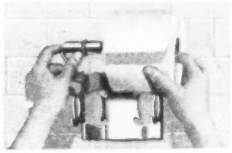

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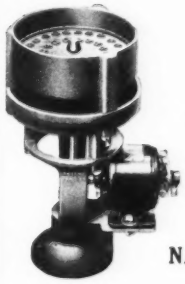

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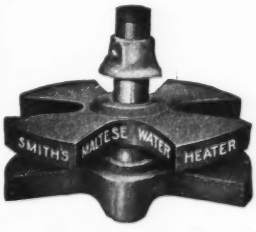

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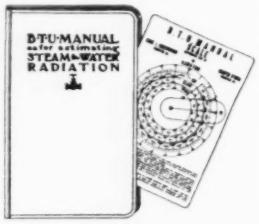
We will send manual and scale to any reliable firm on ten days trial, if not satisfied return to us and it will not cost you one cent.



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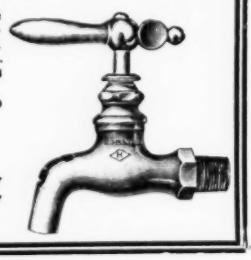

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Montana

George T. Harrigan, of Miles City, recently completed the installation of plumbing in the fifty-room Flanze Hotel in that city.

Because the new building ordinance for the city of Great Falls had not been posted, according to law, although passed more than thirty days ago, the City Council recently voted to allow George Nollar to proceed with construction of a building under the old building ordinance. Noller appeared before the council to appeal from the decision of the Building Inspector in refusing to grant him a permit to erect an apartment house flush with the avenue line on Fifth Avenue North and 18th Street. The building, as planned, will be out of line with the other buildings on the street. The new ordinance provides that all new buildings must be twenty feet back from the avenue line.

Oregon

Bids for the heating, plumbing and electric wiring for the Spaulding Estate Building, Portland, will not be received for several weeks. Plans have not been completed as early as had been expected.

From five to eight Portland contractors will submit general proposals for the erection of the medical school at the University of Oregon, and an equal number for plumbing and heating. Following firms have secured plans or signified their intention of submitting proposals for the latter named work: Heating—Rushlight & Hastorf, Fullman & Walker, J. F. Shea, Kendall Heating Co., Appling-Griggs Co., and Muirhead & Murhard. Plumbing—Rushlight & Hastorf, Fullman & Walker, Williams & Beggs, J. F. Shea, Sturges & Sturges, De Temple Co., and Muirhead & Murhard.

Plans for the proposed depot building, to be built at Salem by the Southern Pacific Railway Co., have been completed, and bids will be called for general and subcontracts in the near future. The structure will cost about $30,000.

Architct H. A. Williams, of Panama Building Portland, has completed plans for a large residence and other buildings to be built for F. P. Egan at Ritzville, Wash. The plans provide for a nine-room house, with two baths and a modern heating system.

Architect Ernest Kroner, Worcester Building, Portland, has completed plans for a new garage building to be built at Wasco for I. M. Barnett. The structure will be 100x100 feet and cost in the neighborhood of $30,000.

W. S. Chandler, Marshfield, plans the erection of eight residences at Eastside.

A plan is under way among business men of Marshfield to form a stock company for the erection of a large number of homes to care for the rapidly increasing population, due to the number of shipyards being established on Coos Bay.

Fish & Bowen, of Baker, who have the contract for plumbing in the new Baker High School, have been unable to finish the work by the time the other contractors completed their work. The delay was caused by excessive slowness in freight shipments, and after arrival is was found a portion of the equipment was not the kind specified, causing another delay.

The McEachern Ship Co., of Astoria, plans the erection of a large number of houses in the vicinity of its plant, for the accommodation of the shipyard employes. One of the serious problems of the plant is the housing of the workmen, and the city has an insufficient number of residences to take care of the increased population. The company plans a series of three-room residences with modern equipment.

California

San Francisco and Vicinity.

The Liberty Bond campaign, the uncertainty as to the effects of the new federal tax measure and the lack of definite prices for steel and iron products awaiting the adjustment of the mills and manufacturers to the new federal steel prices have combined to restrict business more or less, though most of the plumbing and heating shops are still fairly busy either on small work or on contracts secured some time ago.

The pipe situation is quite uncertain, with the oil fields and the government the chief buyers. The municipalities are not disposed to compete with the federal government in the issuing of bonds, and no municipal waterworks are expected to be undertaken for some time.

The T. P. Jarvis Manufacturing Co., of San Francisco, Cal., has been incorporated with a capital stock of $50,000 to engage in the manufacture of crude oil-burning devices. The incorporators are: M. C. Sousa, of Oakland, Cal., and E. H. Jarvis, S. Adler, S. J. Levy and G. M. Lubeck, all of San Francisco.

James H. Pinkerton, of 2266 Fulton Street, has secured the contract for installing plumbing and drainage systems in the new Langendorf bakery building.

The San Francisco Compressed Air Cleaning Co. has been awarded a contract for the installation of a vacuum cleaning system in the new ten-story American National Bank Building. Consideration $2,875.

The Pacific Sanitary Manufacturing Co., of San Francisco and Richmond, Cal., has an elaborate exhibit of its products at the California Land Show, now under way in this city. Bath tubs, bath room fixtures, toilet fixtures, etc., are shown and an attendant is on hand to offer explanations and distribute literature in the interest of the company's goods.

F. S. Gilbert, of the plumbing firm of Gilbert & Son, of Visalia, Cal., has been visiting in San Francisco this week.

Other Cities in the State.

Gus Holmes, a well known hotel man of Los Angeles and Salt Lake City, announces that, in conjunction with others, he will in the near future erect a large hotel at Los Angeles, at an approximate cost of $2,500,000. According to the preliminary plans, the hotel will cover a site of 100 by 150 feet and will contain about 750 rooms with baths.

The Board of Education at Escondido will shortly let a contract for the remodeling and repairing of the present heating system in the Escondido grammar school.

The Robert Dalziel Co.'s bid for the plumbing of the new high school at Healdsburg, amounting to $5,322, was the lowest submitted, and the company was awarded the contract.

Irving Kelly has bought out the plumbing business of Rutherford & Newman at King City, Cal.

The Board of Supervisors of Inyo County have ordered plans drawn for a new county court house at Bishop, to cost approximately $150,000.

Extra Business for the Plumber

Everywhere you install a radiator you have a customer for

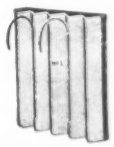
The Savō Air Moistener

Works automatically. Costs nothing to maintain.

A corrugated galvanized iron reservoir which hangs on back of radiator out of sight. Keeps uniform humidity throughout house.

Use it on old as well as new work.

Write for free advertising material that helps to sell the SAVO.



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Conserves coal.
Operates noiselessly.
Requires minimum attention.
Ask for Dunham Bulletin No. 11.

C. A. DUNHAM CO., Marshalltown, Iowa
Branches in all principal cities of United States and Canada

NIEDECKEN MIXER

For
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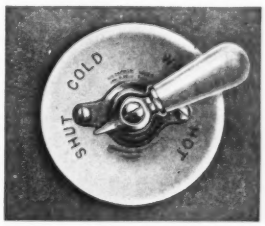


Write for Bulletin D-10-X

HOFFMANN & BILLINGS MFG. CO.
MILWAUKEE

TRY BLUE SEAL AT OUR EXPENSE

This liberal offer is for plumbers who have never used BLUE SEAL. It gives an opportunity to try at our expense the original Money Back Drain Pipe Solvent.

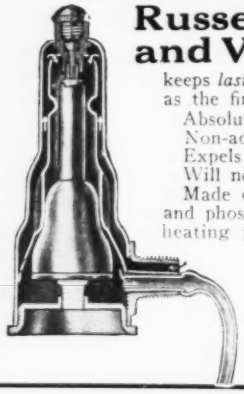
Cut out this advertisement, mail it direct to us with your own address—and your jobber's. We will then send you, transportation charges prepaid, six one dollar cans (2 lbs.) BLUE SEAL

DRAIN PIPE SOLVENT

Use these six cans according to directions to clear waste and drain pipe stoppages. If the Solvent does all we claim for it you are to send us $1.60 (special price for plumbers) within ninety days. If not the trial costs you nothing.

10,000 plumbers now use Blue Seal. Over 300 jobbers stock, sell and recommend it. If you haven't used it, this is your opportunity.

BLUE SEAL CHEMICAL CO.
417 E. 16th St. New York



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keeps *last section* of radiator hot as well as the first.

Absolutely automatic.
Non-adjustable.
Expels all air and prevents its return.
Will not leak steam or water.
Made of highest quality steam metal and phosphor bronze. Will outlive the heating plant.

Send for Free Sample.

W. A. Russell & Company
63 W. 37th Street
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THE "SIMPLEX"

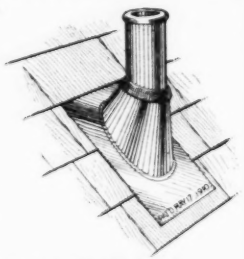
Adjustable Galvanized Iron and Copper

ROOF FLASHING

Perfectly adjustable to any pitch from 50% to flat. Highest quality material. Highest quality of workmanship.

"Simplex Service will please you."

Write for booklet.



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313 So. Clinton Street, CHICAGO, ILL.

New York City Office: H. J. Ryan, 50 Church Street

Tank Fittings of Quality

1856 **"McSHANE"** 1917

The ORIGINAL Compound Lever Ball Cock, Elevated, Low-Down, Top and Bottom Supply. Tank Levers and Valves.

McSHANE BELL FOUNDRY CO.
BALTIMORE, MARYLAND

FOR lasting quality and true capacity use "KOVEN" Pure Iron, Double Row Riveted, Galvanized Range Boilers, or NACO Galvanized Range Boilers made of open hearth steel. These boilers may be bought of jobbers everywhere.

L. O. KOVEN & BRO.
50 CLIFF STREET NEW YORK

The Rockwood Sprinkler Company has been awarded a contract for the installation of a sprinkler system in the building of the R. W. Pridham Company at 901 North Main Street, Los Angeles.

The California State Board of Agriculture has ordered plans drawn for a new exhibit building to be erected at the state fair grounds at Sacramento at a cost of about $300,000.

Ohio

Cleveland and Vicinity.

Sixty-five members of the Cleveland Builders' Exchange, including several plumbers, made a trip to Akron, by automobile on Wednesday, October 24th, to attend the meeting of the State Association of Builders' Exchanges, in session there. The Cleveland delegation made a strong bid for the 1918 convention, so strong, in fact, that the contest was a tie and the selection of a convention city was left in the hands of the executive committee. Ralph P. Stoddard, of Cleveland, asserted that there was no prospect of cheaper building prices for some years to come. The following Cleveland plumbing and heating contractors are members of the Exchange: J. J. Comerford, Dettelbach Plumbing & Heating Co., American Warming & Ventilating Co., the Brainerd Co., Ellen & Norris, Koblitz Plumbing & Heating Co., Kadelcek Plumbing & Heating Co., Keiper & Gould, J. P. Pickett, Schneider Plumbing Co., P. J. Turnbull, Wadsworth Plumbing Co. and Warden & Leese.

The R. E. Green & Son Co., of 4525 Detroit Avenue, has been awarded the plumbing contract on the $15,000 residence and garage to be erected at 2646 Wilkolm Road, Shaker Heights, for Gustav Hirsch.

The Home Furnace & Roofing Co. has the heating contract and A. W. Stark the plumbing contract on a residence for H. R. Scotie, to be erected at 17415 Morton Avenue, Lakewood.

Warden & Leese have the plumbing contract for an $8,000 service building for the River Furnace Co.

The Maskell George Co. has been awarded the plumbing contract on two residences for the Well Built Homes Co., 1567 Elmwood Avenue, Lakewood.

The heating contract for the Dr. J. F. Kofron residence and garage on Drummond Road, Shaker Heights, has been awarded to Melvin Jones, 179 Lockwood Avenue, Lakewood.

The W. G. Cornell & Co., of 657 Leader News Build-

Mrs. John A. Young, Canton, O.; Mrs. Jas. W. Barber, Pittsburgh, Pa.; Mrs. William Rowland, Youngstown, O.; Mrs. H. S. Smith, Warren, O.; Mrs. Geo. H. Young, Dayton, O., and Mrs. W. J. Scholl, Youngstown, O.—From "Domestic Engineering" Photo.

ing, have closed the contract for the installation of modern plumbing in the $125,000 office building, for the United Alloy Steel Corporation, Canton.

The Koblitz Plumbing & Heating Co., has closed the contract for installing plumbing in the $150,000 Montefiore Home for the aged, at Mayfield and Lee Roads.

Rover Bros. of 322 Erie Building, have been awarded the plumbing contract, and the McNut Furnace Co., 457 Leader News Building, the heating contract for 67 residences to be erected by the J. L. Freeland Co., at a total cost of $250,000.

F. G. Miller, 4746 Broadway, has the plumbing contract on two $8,500 residences to be erected on Shaker Heights, for E. M. Bell.

Cincinnati and Vicinity.

With the earliest wintry weather in years to diminish building activity, and hence the available amount of work on the market, Cincinnati master plumbers have none the less found something to interest them during the past few weeks. The Second Liberty Loan campaign in the Queen City enlisted the efforts of virtually the entire business world, and the fact that over 60,000 persons subscribed to the bond issue indicates sufficiently the amount of interest taken in the loan, as well as the extent to which the city poured out its wealth for the government. The Cincinnati Master Plumbers' Association made a substantial contribution in its own name, a number of members making up the amount, while most of the individual members also bought bonds. The maximum quota of Cincinnati was $35,000,000, and the total reached was nearly $52,000,000, making an over-subscription of about 50 per cent. If the same proportion had been maintained all over the country the amount subscribed would have been in the neighborhood of $7,500,000,000.

High metal prices have been a powerful incentive to thieves to steal lead pipe and other plumbing metals, ever since the war began, and many instances of vacant houses being entirely stripped of their piping have come to the attention of the trade through repair work called for by real estate concerns and others interested in rental property. Comparatively few of the marauders have been brought to book, however, which makes a recent case in the Cincinnati municipal court the more interesting. A second-hand dealer was found guilty of failure to keep the records required by local ordinances, and was fined $100 and costs, having purchased all of the plumbing pipe and fixtures torn out of a vacant house. His defense was that he did not know the metal had been stolen, but the court imposed a fine on the technical charge, without reference to the more serious offense of receiving stolen goods.

Frank G. Hamer, one of the leading master plumbers in Cincinnati, who has for some time been keenly interested in the housing problem, co-operating with J. G. Schmidlapp, a Cincinnati millionaire, in the building of model tenements, has secured another plumbing contract with Mr. Schmidlapp in connection with the construction of another model workmen's flat building, on Ashland Avenue, Cincinnati, to contain eight apartments. Each will be provided with hot water through a central heater, which is an innovation in such apartments. Mr. Hamer recently attended the National Housing Association's convention in Chicago, to pick up new ideas along this line.

Contracts recently let by M. F. Fitzpatrick on two houses for the market in Price Hill included the award of the plumbing to Niesen & Co.

The Cincinnati Frog & Switch Co., Oakley, Cincinnati, is building a $25,000 addition to its plant, on plans prepared by Architects Zettel & Rapp. The plumbing contract has been awarded to the Gibson & Schlemmer Co.

Plumbing Inspector Ashton, of Lima, has been kept busy

CRANE DRAINAGE FITTINGS

are made with a shoulder against which the pipe abuts so closely that all "pockets" are eliminated, thus affording the drainage a full and continuous escape to the sewer.

They are heavy and strong enough safely to withstand the strain of settling.

CHICAGO CRANE CO. BRIDGEPORT

Branches in 53 leading cities.

Everything for any pipe line.

Stands the Hard Knocks

A "High-Grade Fixture" at a Low Cost

The wear and tear of constant use does not mar the beautiful surface of the S. & K. Rainbow Compression Shampoo Fixture. Supplied with sprinkler and hose complete. A card will bring price. In ordering always state distance from center to center of cock holes.

STREET & KENT MFG. CO.
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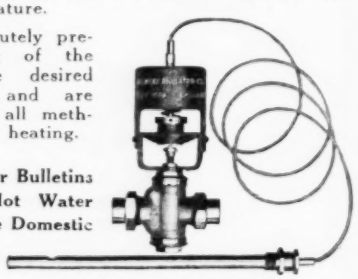
The Economy of Hot Water Control

A Domestic Water Heater operated without automatic control of the water temperature is wasteful, even dangerous.

Water overheated wastes fuel, ruins packings and valves; often bursts boiler or pipes, or scalds a user.

Powers' Regulators are controlled directly by water temperature.

They absolutely prevent heating of the water above desired temperature and are adaptable to all methods of water heating.



No. 11 Regulator, 1¼ inch Valve

Write us for Bulletins concerning Hot Water Control in the Domestic Field.

The Powers Regulator Company

Specialists in Automatic Heat Control

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Used Everywhere—
Best Anywhere

BELL WASHERS

are celebrated for quality.

Recognized all over the country as the standard washer.

For your protection against inferior goods, every **Genuine Boss Washer** is stamped "THE BELL."

Our Hot Water Specialties

Bell Washers, Fuller Balls, Steam Valve Discs and Small Moulded Rubber Goods of all kinds.

Write for prices and discounts.

Samples by parcel post.

Trade Mark

Estate of Andrew Bell

2-4-6 Commercial St., Newark, N. J.

of late enforcing the provisions of the plumbing code requiring the services of a licensed master plumber for all plumbing work, and has caused a number of arrests. Most of them are cases where a mechanic, not a plumber, has attempted to install plumbing in his own home, being either ignorant of the illegality of such work, or ignoring the ordinance.

Tennessee

Nashville and Vicinity.

W. H. Grewar Co., of Nashville, reports a large number of plumbing contracts on hand for residences and apartment buildings in this city. This company has recently completed the plumbing and heating installations in the Cohn apartments at Thirty-first Street and West End Avenue, where the equipment is of the finest.

The Standard Engineering Co., of Nashville, is installing the heating system in Jubilee Hall of Fisk University.

J. M. Gallagher, of Nashville, has the plumbing contract on a large apartment house on Sixth Avenue, North.

The H. Smith Heating Co., of Court Avenue, Memphis, was the successful bidder on the heating contract for the police station.

Ed McGowan, of the McGowan Plumbing Co., of Memphis, is attending the United States Training Camp at Fort Oglethorpe, Ga., near Chattanooga. Mr. McGowan has always taken an interest in local military affairs and was one of the first to respond to his country's call.

Cronin, Baker & Tindall, of 330 Madison Avenue, Memphis, have been awarded the plumbing contract in connection with the addition to the Baptist Memorial Hospital in Memphis.

George W. Bolton has resigned from his position of assistant plumbing inspector in Nashville, Tenn., a position which he filled most acceptably since 1912. Mr. Bolton is the inventor of several automobile specialties, and he resigned to accept an important position with an automobile company.

Pennsylvania

Philadelphia and Vicinity.

J. J. Mulhern, of 3525 Haverford Avenue, has been awarded the plumbing contract on a new school building at Thirty-eighth and Spring Garden Streets.

C. W. Rice, of 4200 Frankford Avenue, is remodeling the plumbing system in the clubhouse of the Wissanoming Gun Club.

George W. England Estate, 235 South Fifth Street, is making the plumbing installations in some very fine houses in St. Martins.

H. B. Clegg, of 1605 Frankford Avenue, has secured the contract for constructing underdrainage systems for a row of houses on Marlborough Street.

B. Landau, of 1216 North Fourth Street, has the contract to install a heating system in the new Century Club home.

Geo. W. A. Butler, of 134 East Sixth Street, Erie, has been awarded the contract for the installation of plumbing, drainage and vacuum cleaning systems in the Lawrence Park public school in that city, a $4,000 job. Mr. Butler has also secured the contract for remodeling the plumbing and installing a new general toilet room in the Erie public library.

Credit Association of the Building Trades of Philadelphia Organized.

The Credit Association of the Building Trades of Philadelphia has just been organized and incorporated "for the purpose of encouraging trade, receive and supply to the members information as to commerce, exchange, credits, markets; to collect debts and in all lawful ways to conserve and advance the business interest of its members." The by-laws, rules, etc., for use in conducting the affairs of the association have been carefully designed and legally approved to give the best possible service which will shortly be instituted and confined to the field indicated. The Board of Directors is composed of representatives duly elected by the various building trade sections and have elected permanent officers as follows: President, A. D. Weber; treasurer, Wm. P. Thompson; secretary, M. G. Sellers. Executive Committee: A. D. Weber, mill work; Wm. P. Thompson, steam fitting; R. C. Williams, Jr., electric work; E. P. Henry, tile; H. W. Geschwind, cement and asphalt. Offices and headquarters have been established at 1518 Sansom Street, Philadelphia.

District of Columbia

It is believed that the District of Columbia Plumbing Department has set a swift pace for other municipal plumbing departments in the purchase of Liberty Bonds and participation in the war generally. In addition to Assistant Inspector Frank Lockhead, who is a captain, and Clerk William B. Wall, who is a lieutenant in the 162nd Infantry, two assistant inspectors have been dratted for inspection of plumbing work for the war department, and every man on the force is the proud possessor of two or more Liberty Bonds. One of the force possesses $200 worth of bonds for each of the issues; one man possesses $200 of the first issue and $100 of the second issue, and all of the rest of the force, including the two army officers first mentioned, are possessors of either a $50 or a $100 bond of each of the two issues.

New York

Buffalo and Vicinity.

Batt & Co., of Michigan Street and North Carlton Avenue, Buffalo, have secured the contract for installing the heating system in the $40,000 church being built in Depew, N. Y.

The heating contract for three new residences on Florida Street, Buffalo, has been awarded to A. E. Shuart, of 260 Grant Street, Buffalo.

M. J. Murry & Co., of 323 Washington Street, Jamestown, have secured the heating contract for the new bank and office building on the corner of Main and Second Streets in Jamestown, which is being built at a cost of $100,000.

Geo. H. Drake & Co., of 218 Lexington Avenue, Buffalo, have secured the heating contract for the new extension of the Tonawanda Board & Paper Co.'s factory, which is being built at a cost of $75,000.

A $65,000 parochial school is being built on the corner of Hertek Avenue and Saranac Street, Buffalo, and W. T. Hughes & Co., of 2010 Seneca Street, Buffalo, have secured the heating contract.

The heating and high pressure piping for the heating plant of the Hydraulic Canal Basin at Niagara Falls has been awarded to O'Connor & Heusner, of Buffalo.

"Use Johns-Manville Radiator Traps on that Smith job. I don't want any comeback."

And that plumber is wise. He knows Smith is hard to please and if those radiators don't behave as well in six months as when first installed, what Smith will have to say will be plenty.

Plumbers and steamfitters everywhere are using the Johns-Manville Radiator Trap because of its extreme simplicity and absolute reliability.

No springs or valves or expanding liquids—no delicate adjustment work to be paid for out of profits. Just a body, a ball, and a connecting union—nothing to wear or get out of order. And it's sure in operation—no steam leakage, no air binding.

Ask for special pamphlet and prices on this time and trouble saver.

H. W. JOHNS-MANVILLE CO.
New York City
10 Factories—Branches in 55 Large Cities

JOHNS-MANVILLE SERVICE COVERS THE CONTINENT

Johns-Manville Radiator Trap

Forget Your Valve Troubles

and incidentally your customers will have no valve troubles to forget, if you use

The Georgia Valve

in every low down tank you install. **Different in construction** from any other valve on the market.

BALL-COCK STEM SUPPORT

Has raised seat, Vim leather washer on cast brass disc fastened firmly to extra heavy stem guided above and below valve seat. Small float holding hinged finger against stem, so when disc is raised, finger engages integral flange on stem, holding it until tank empties. This permits float to drop and valve to reseat.

PAT. OCT. 19, 1915

Write for circular giving full description.

Rundle-Spence Mfg. Company
65 Second Street, Milwaukee, Wis.

Dole PACKLESS GRADUATED RADIATOR VALVE

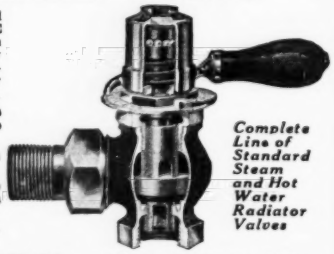
Embodies a new and exclusive DOLE principle by which you can have every degree of opening required in vacuum or vapor steam heating.

This Adjustment is easily made while the steam is on.

Nothing like it on the market.

Furnished with the DOLE without extra cost.

Write for new circulars.



Complete Line of Standard Steam and Hot Water Radiator Valves

THE DOLE VALVE CO. 208 No. Fifth Ave. Chicago

PAUL Systems give the Best Service

Private Water Systems
Private Electric Lighting Systems
Electric and Power Pumps
Compressors and Garage Air Service Systems

For Country Homes, City Residences, Country Clubs, Summer Cottages, Factories and Private and Public Institutions, For the Factory or Private or Public Garage

FORT WAYNE ENGINEERING & MFG. CO.
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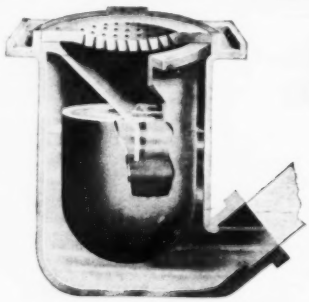

The Original DONOVAN FLOOR DRAIN AND SAND ARRESTER

Note Interior Removable Chamber

For Sale by All Dealers

Made by SANITAS MFG. CO.
105 Washington St., Boston Send for Circular

UNIFORM HOT WATER HEATING

Write for This Booklet

It tells you all about the

Ball Seal Generator

for Hot Water Heating.

This generator increases circulation and radiation. Prevents sluggish, water-logged conditions. Reduces fuel cost. Operates without noise. No attention needed.

Just what you want for that next job.

The Ball Seal Generator Co.
Easton, Pa.

PLUMBER PERKINS INTERVIEWS FARMER HARDCASTLE.

(Continued from Page 179.)

well without the expense of putting in new fangled luxuries of one sort or another.

"If I have any money to spare it ought to be invested in building a bigger silo next year and in putting in a concrete floor in that cow farm over yonder."

"Well, now," began Perkins, "if you'll bear with me a little, I'll endeavor to present my side of the case. Of course, I appreciate some of the points in your contention that modern plumbing, modern water supply systems and all that, can be disregarded, and that you and I and the rest of us, can get on and even be contented and satisfied with our surroundings. I realize there is much truth in the old saying that contentment is largely a state of mind, and that if we feel satisfied with our surroundings, that we have found the secret of human happiness in a large measure.

"The savage in the jungles of Africa, who knows nothing definite about the comforts and conveniences of modern civilization, is perhaps just as happy or happier than the man who enjoys the use of electricity, steam and all the varied things that have made the white race supreme among the races of the earth.

"Now, for instance, there's that well near the house and that pump where your hired men wash their hands and face at all seasons of the year. When your men are out somewhere in the fields and your wife needs water for cooking purposes or household use, she, or the hired girl, must go out winter or summer, rain or shine, and carry it in."

Just as Perkins finished this remark, the hired girl appeared suddenly at the kitchen door. She dashed a pailful of slop-water into the yard, narrowly missing a chicken as it flew frantically away from the malodorous spray.

"Don't you think, Mr. Hardcastle, that it would be much more convenient and more healthful if that slop-water, full of contamination, were properly disposed of by drainage—by septic tank methods?"

"That may be all true," replied Hardcastle, "but those things cost money."

"A modern drainage and water supply system would soon pay for itself in better service and as a time and energy-saver," observed Perkins. "Piping would convey water to your barn and hog-house, doing away with the old-fashioned open trough which is very unsanitary. Through the medium of a water supply system, fresh water could be distributed at convenient points around the farm yard and buildings.

"As a matter of fact, Mr. Hardcastle, farm life can be made healthful and attractive by modern plumbing and heating systems. It will eliminate the growth of dysentery and typhoid germs which hold forth strongly on the average farm. Then you must remember that cesspools and privies disseminate disease around a farm through polluted drinking water and flies.

"The winter is coming on and a heating system in the house would be infinitely superior to stove heat which makes extra work in the hauling of coal and ashes. Stoves create soot and dust, whereas a modern heating system promotes cleanliness—less soot and dust, less washing of curtains, less dust all-around. With your plumbing and heating installed, you do away with the discomfort of unheated rooms and the chill of going from the house to the yard pump or to the outside privy in winter."

At this juncture in the conversation, Miss Constance Hardcastle, winsome and bright-eyed, came tripping out of the house with Fido, the faithful dog of the farm. She drew close to where her father was standing and gradually she edged in, close enough to overhear the conversation. Then Hardcastle noticing his daughter, called her over, and introduced her to Perkins, telling him she had just returned from the city.

"Are you aware," continued Perkins, resuming the thread of their discussion, "that statistics will prove that the average farmer doesn't know how to live, and that the average farmhouse is less healthful than the average tenement in the crowded sections of our cities?"

"Now that is strange," exclaimed Hardcastle, "I never heard that statement before. Show me your statistics."

Miss Hardcastle also expressed surprise: "Why, father, can that really be possible?"

"Please let me quote from the report of the International Health Commission of the Rockefeller Foundation," said Perkins. "Kindly listen to this," and Perkins drew forth a trade paper:

"In a recent survey, 287,666 farm houses were examined, and of these 142,230 were found to have not even latrines of any kind. This means that at nearly half of the homes, soil pollution invariably prevailed. The spread of typhoid fever, diarrhea, dysentery and similar diseases, is largely to be attributed to soil pollution. In cities and towns, where there are modern plumbing systems, soil pollution is rare. The lack of proper drainage and waste disposal upon many farms, accounts for the superfluity of flies which carry disease into the home, and particularly to the kitchen where the food is prepared."

"Father, that's just awful," observed Constance, "and to think that we are living in this enlightened age and have no plumbing or other modern comforts in our home."

"Well, my dear," said Hardcastle, "you are still alive and so is your mother, and the rest of us. We are a hard family to kill off, and I don't think flies will ever do it. Besides, don't we swat thousands of 'em and we'll swat more with sticky fly-paper, poison, etc."

Hardcastle was interrupted by the sudden appearance of two men who were entering the premises through the big driveway.

"I reckon that's a couple of chaps who want jobs," said Hardcastle. "I have a difficult time keeping my men for any length of time. They seem to get dissatisfied, somehow or other. It's funny, too. I pay them pretty well."

"Well, do you know why?" said Perkins. "To be frank with you, it occurs to me that you don't make things comfortable enough for your employes. Wages, you know, aren't everything. Employes like to work in an environment with a few attractive features. Take, for instance, the old southern darkey of slave days. Many of them after they were freed, actually came back to their former masters, who had always housed them decently and treated them considerately. History records that they returned, when they might have profitably gone elsewhere. Returning, they were wont to say: 'Ise done come back again, massa. Ise longin' fo' de ole plantation, massa.'"

"Yes, that's right, father, that's right," chimed in Constance. I've read that in my history of the old South. It's really a fact that some of those darkies preferred the institution of slavery under considerate masters and amid comfortable surroundings."

"Father, Mr. Perkins is right. That's why you can't keep any help worth while."

Constance smiled. Her eyes flashed. "Father, you're

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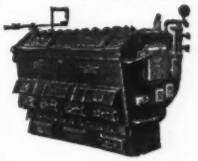

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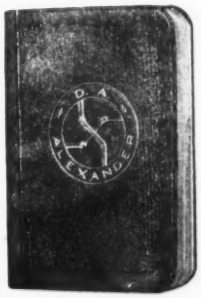

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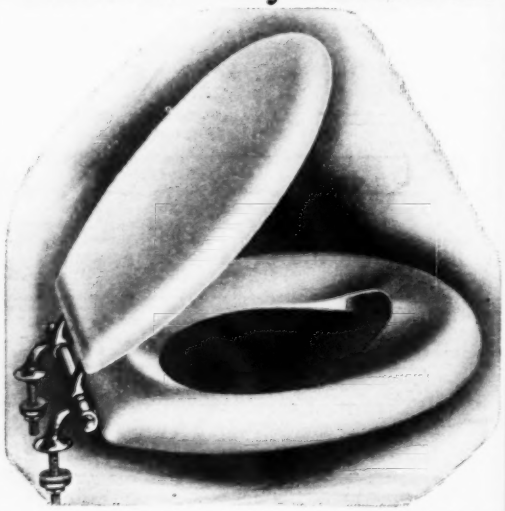

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the dearest dad in the world, but you let your purse-strings rule your head. I'm afraid you think more of the comfort of the cows, horses and pigs, than you do of your hired help—the men who are helping you to acquire this world's goods. The idea of allowing those poor men to sleep in the barn, and to have them bathe in a pail of cistern water! Father, that sort of thing has always puzzled me. Now, since I've heard Mr. Perkins' viewpoint, I can readily see the ridiculousness and positive injustice of such conditions."

There was a half-humorous, half-serious look in old Hardcastle's eye. As if he intended to say, "That's the woman in you, my dear."

"As for mother, sister and myself," continued Constance, "we are growing weary of the old portable tin tub. Every time we take a bath we have to heat the water in the kettle and have it carried to the tub. Why should we forever continue in that manner? We are not living in the middle ages. Father, you haven't a leg to stand on. Mr. Perkins is absolutely right. You might just as well haul down your battle flag and stop firing any more arguments."

Perkins smiled, and so did Hardcastle, who observed that his daughter had a fighting spirit.

"The ordinary mechanic in the city," began Perkins, "enjoys more luxury than the average farmer. In many of the factories they have shower baths, recreation rooms and all that. Factory owners realize that improved working conditions are conducive to efficiency and good will on the part of employes. It pays to introduce attractive features into the employes' environment and ——."

"That's enough, that's enough," interrupted Hardcastle. I've been thinking while I was listening. Besides, you have secured a member of my family as an ally—and a powerful ally she is. Constance, I'm afraid, would be too constant in her verbal assaults to give me any peace of mind in the house. Therefore, Constance and I will pay you a visit tomorrow evening and we'll have a look at the latest designs in bathtubs and lavatories, closets, etc. We will also consider the question of a modern heating and water supply system—particularly the type of system most desirable."

Perkins thanked Hardcastle and both shook hands bidding each other "good-day." Then Constance threw her arms around her father's neck: "You're the dearest dad in the world!" she exclaimed.

Delayed Dénouement.

A problem play was being produced in Chicago. One evening it was discovered that a certain man, evidently from the rural districts, had attended the play six nights in succession and always sat well down in front.

These facts were communicated to the theater's press agent, who scented a good story. Approaching the interested spectator between the acts, he apologized for his intrusion and said:

"Would you mind telling me just why you are so interested in this play? Do you know some member of the cast?"

"Nope," said the man from the outlands. "That ain't it. But I'll tell you about it. You know the scene in the private room in the restaurant, where the dark man and the other man's wife get up and leave by the left-hand door just a moment before the woman's husband enters by the right-hand door?"

"Yes," said the press agent expectantly.

"Well," said the interested spectator, "some night the husband's going to come in before they leave."—Pittsburgh Chronicle-Telegraph.

THE PRESENT STATUES OF ELECTRIC HEATING.

(Continued from Page 170.)

For the climate of Seattle one kilowatt capacity of heater was found necessary for each square foot of direct hot-water radiation. Probably in colder regions a ratio of 1 to 15 or 18 would be required. For a peak load of 4½ hours, during which time the heating plants were cut out, it was found necessary to install a storage tank of 20 gallons for each kilowatt capacity of the heater. The cost of the installation varied from $10 to $20 per kilowatt, depending upon the size and layout of the house.

Electric heating has also been carried out in connection with a number of offices in the city.

The largest buildings in this country heated by electricity are the high schools in Rupert and Burley, Idaho. Economical operation in these cases is due to the exceptionally low rate, at which current may be obtained during the heating season.

This comes from the Minidoka Dam, from 15 to 20 miles distant, and is furnished at a flat rate of $1 per kilowatt per month. This is probably the lowest rate for current on record and is due to the fact that the electric plant is

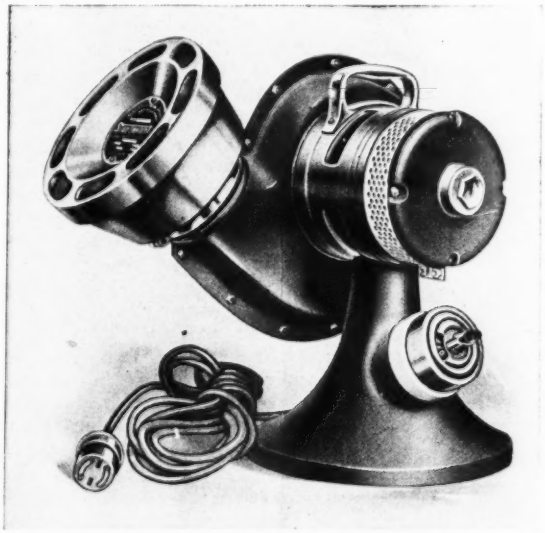

Fig. 11.—Electric Air Heater and Blower. Capacity from 3,400 to 34,000 B. t. u. per Hour, Requiring from 1,000 to 10,000 Watts.

used for irrigation purposes during the summer and that there is only a limited market for current during the winter months. The building at Rupert has an air space of 300,000 cubic feet and was built to accommodate 600 pupils. It is warmed and ventilated by a fan system, having a capacity of 20,000 cubic feet of air per minute. All the heat is furnished by a single stack at the fan, which has a maximum capacity of 400 kilowatts, although 260 were found sufficient to warm the building to 70 degrees, when it was 15 degrees below zero outside, by recirculating the air.

The ducts are so arranged that either the whole or any part of the air supply may be drawn from outside the building, the same as in the usual fan system using steam, and it is normally operated with an outside air supply during school hours. At other times the fan is shut down and connecting doors opened so that heat from the warm-air chamber passes through the building by gravity circulation.

The cost of the electrical heating system for this build-

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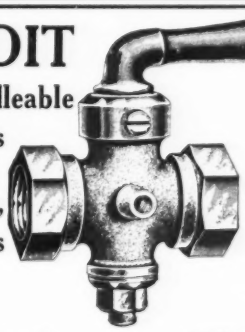
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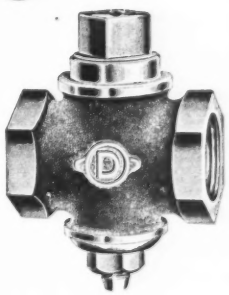
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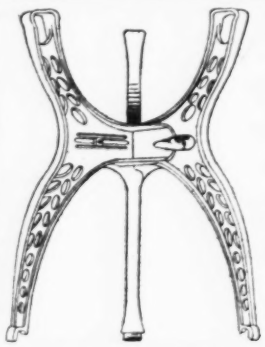

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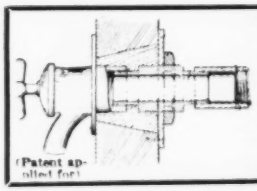

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ing was about $3,000 less than the estimated cost of any system using coal as a source of heat. When this system was designed the maximum operating cost was estimated at $440 per month, but under actual conditions it amounted to only $270. The estimated cost for steam heating at current prices for coal and firemen's services was $280 per month for the same conditions.

The high school at Burley is practically twice the size of that at Rupert and is said to contain the largest electric heating plant in the world. The system is practically a duplicate of that in the smaller building, except for its size.

The operating results have been satisfactory thus far, following in a general way those obtained at Rupert. These buildings, of course, are exceptionally located for a low rate for current, which would be difficult, if not impossible, to obtain elsewhere. Raising this rate to two cents per kilowatt-hour would make the cost for heating about six times that for steam, including the additional investment and labor charges.

Another large plant is in the office building of the Hydraulic Power Co. at Niagara Falls. This is a fan system, combined with re-heaters placed in the individual ducts leading to the different rooms. The apparatus has a capacity of 15,000 cubic feet of air per minute, which may be raised to a temperature ranging from 50 to 80 degrees, depending upon outside conditions. Additional heat may be supplied, as needed in the different rooms, by pressing a button near the register which throws in the re-heater. This system has proved very effective, and as the cost of electricity is exceptionally low at Niagara, the convenience may warrant any nominal increase in cost of operation over that of steam.

It may be of interest in closing to mention briefly some of the equipment used in electric heating.

The radiators employed are of three general types. The air, hot-water and steam. The direct, or air, radiator is made in various forms, some consisting of a series of loops or coils of iron wire so arranged that a variable number can be thrown into the circuit, as more or less heat is required. In other cases the heating material is embedded in enamel or fire-clay or other substance which is a non-conductor of electricity but a good conductor of heat. The surrounding air is warmed partly by radiation and partly by contact with surfaces receiving their heat by conduction from the resistance coils.

In the electric hot-water radiator the resistance element is made to impart its heat to the surrounding water, which, in turn, circulates through a radiator of the ordinary hot-water type.

An electric steam radiator has recently been put on the market which is similar to the hot-water type, except that it contains only a small amount of water in the lower part, which is in contact with the heating element. In use, a part of this water is evaporated into steam which fills the upper part of the sections in the usual manner. All of these types are self-contained, portable, and made in different sizes.

When the electric "boiler" or tank heater is employed, the radiators and all supply and return piping are the same as in the ordinary hot-water system.

The heating elements for this class of work are usually of the "bayonet" type, placed inside of sections of the return main, these sections being made up of 2½-inch pipe about 30 inches in length.

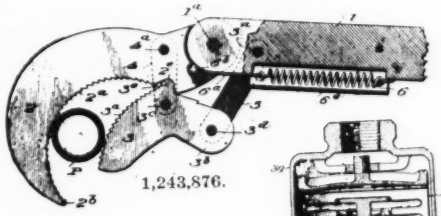
A convenient form of electric heater, for especially quick warning, consists of a compact radiator of the air type connected with a small electric fan, the whole being attached to a light socket when in use. The advantage of this arrangement is large heating capacity for a given amount of surface, due to the high velocity of the air passing over it.

Patents

Heating Department.

1,243,876. Wrench. William Riley, Henry, S. D. In a wrench the combination of a handle, a main jaw pivotally connected with the handle, a minor jaw opposite the main jaw, links pivotally connected with the minor jaw and with the main jaw, links pivotally connected with the shank of the minor jaw and the handle, said main jaw having a shoulder near its pivot, and said minor jaw having an abutment or projection adapted to engage the shoulder of the main jaw; and a spring connected with the handle and the main jaw, substantially as described.

1,243,975. Humidifier. Willard McC. Reid, Port Clinton, Ohio, assignor to Reid-Geisler Mfg. Co., Chicago, Ill., a corporation of Illinois. In a humidifier, a venticulated V-shaped member, communicating compartments located on the opposite sides of the V-shaped member, the corner of the V-shaped member being adjacent the plane of the bottoms of the compartments and the edges of the V-shaped member connected to the upper edges of the compartments, a wick located on the surface of the venticulated V-shaped member and extending into the compartments.



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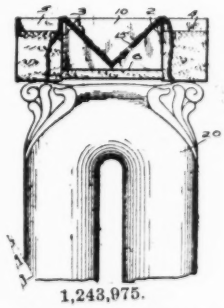

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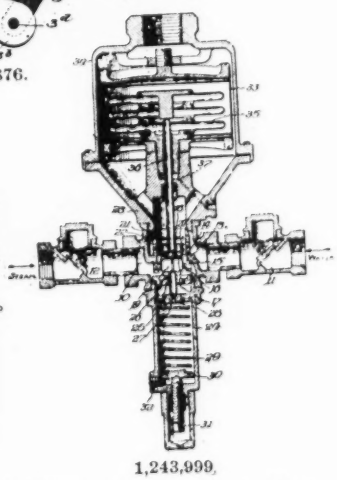

1,243,999.

1,243,999. Thermostatic Steam and Hot Water Mixer. Morton O. Snediker, Chicago, Ill., assignor to Powers Regulator Co., Chicago, Ill., a corporation of Illinois. In a mixing device, the combination of a valve casing having inlet openings for hot and cold fluids and likewise provided with openings for the reception of a thermostat casing and a spring casing, respectively, a valve mounted in said valve casing, a thermostat for actuating said valve in one direction and a spring in said spring casing for actuating it in an opposite direction, and a diffuser surrounding said valve, said diffuser being adapted to be clamped in place by said thermostat casing, substantially as described.

1,242,888. Automatic Relief Valve. Ernst A. Ploeger and John Penrose, Chicago, Ill.

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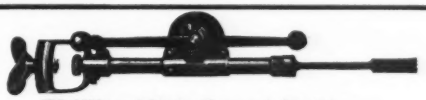

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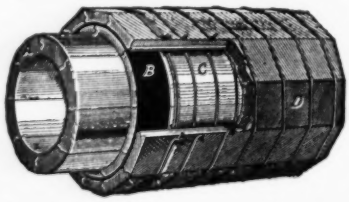

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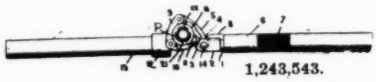
H. H. WHITE
378 Piedmont Ave., Atlanta, Ga.

1,243,543. Die and Die-Stock. Myles F. Moran, Lynn, Mass. A thread cutting head for a compound tool consisting of three longitudinal sections hinged together, each of said sections being provided at one end with a screw cutting member and at the opposite end with ribs adapted to form

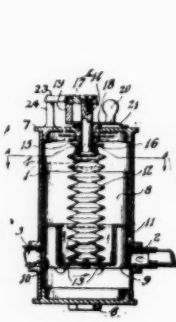


1,243,543.

guides for the article to be screw threaded and to form holding means for a tool chuck, said head being externally screw threaded at its ends to receive accessory members substantially as described.

Plumbing Department.

1,244,184. Automatic Temperature Regulating Device. David Dunwoodie, Dayton, Ohio. In a device of the character described, a casing having near one end thereof separate inlets for hot and cold water and having near the other end thereof an outlet, a hollow cylindrical valve mounted in said casing for movement lengthwise thereof and having parts to alternately close the respective inlets, a partition arranged within said valve between said parts thereof and said outlet and having openings therein, and a thermostat connected at one end with said partition and at the other end with said casing adjacent to said outlet, and adapted to shift said valve to regulate said inlets according to the temperature of the water in said casing on that side of said partition adjacent to said outlet.



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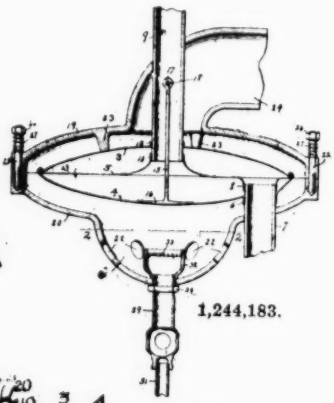

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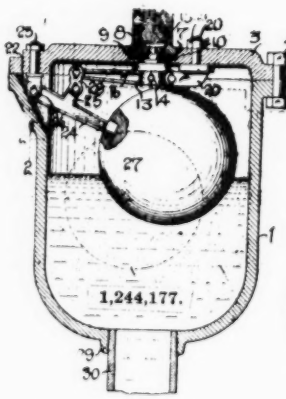
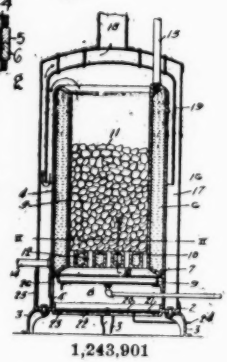


1,244,177.



1,243,901

1,244,183. Water Heater. John B. Dudley, Detroit, Mich., assignor of one-fourth to William A. Atkinson and one-fourth to Fred Knapp, Detroit, Mich. In a water heater, the combination of a water chamber consisting of upper and lower outwardly convex heads and a substantially flat horizontal diaphragm between them, a pipe connecting into the space above the diaphragm to supply

water thereto, said diaphragm having a hole through which said water may pass to the space below it, a burner below the lower head, and a housing extending around the burner and then around the water chamber with its walls substantially parallel to the outer portion of the lower head and to the upper head to cause the burnt gases to flow in engagement with said surfaces of the water chamber.

1,244,177. Pressure Valve. Clarence G. Crispin, Salem township, Luzerne county, Pa. In a pressure valve for water systems, a receptacle having an enlarged portion, and an inlet for water under pressure in the bottom thereof, a removable cover, said cover having a central opening provided with a cut-away portion forming a valve seat, a lever pivotally supported by said cover, a valve carried by said lever and adapted to seat in said cut-away portion, a second lever pivotally secured to the cover and occupying said enlarged portion and provided with a float at its outer end, and means for connecting said levers whereby the valve is opened or closed by the movement of the float substantially as described.

1,243,901. Water Heater. Mahlon A. Unger, Dormont, Pa. In a water heater, the combination of a cylindrical open center casing comprising an inner and an outer concentric shell, a top connecting wall and a bottom outwardly flaring connecting wall therefor, thereby providing an intervening annular water containing cavity, a water inlet and water outlet pipe connected with said cavity, a fuel burner located beneath said water cavity, a lower transverse closure below the burner having means for admitting a variable air supply, a compound inner and outer shell providing for a tortuous circulation of the gases of combustion, said outer shell having an outlet flue, said inner shell extending downwardly a substantial distance around and spaced from said cylindrical casing, and said inner shell being spaced from and supported by said outer shell.

JOIN THE CIVIC RANKS AS A TECHNICAL GUILDSMAN.

In connection with or in response to the call of the President for volunteers, the attention of all technical men, i. e., men skilled in any line of science or mechanical or electrical or chemical or ordnance or explosives or mining or shipbuilding or railroad or motors or metallurgy or building of aeroplanes or water supply or sanitation, etc., is especially invited to the need of the Army for such (young) men—aged 18 to 40—in sundry branches of technical troops concerning which write for literature to Major J. E. Bloom, U. S. A., 266 Market Street, Newark, N. J.

Any technical "men who are exempt" or who from any cause cannot "volunteer," can yet efficiently co-operate, by forming Technical Patriotic Educational Guilds in their several industries or home neighborhoods, especially to look after the welfare of their men in the service, and to give them the opportunity of obtaining technical assistance, opinions and advice from home, in any war industry, from time to time.

Hartford, Conn.—J. Albert Oakes, a master plumber, has filed a petition in bankruptcy, scheduling liabilities of $1,472 and assets of $369.77.

Delta, O.—Herbert A. Curtis, a contracting plumber of this town, has filed a voluntary petition in bankruptcy, scheduling his liabilities at $4,457.18 and his assets at $2,932.50.

Fig. 608½. House Force Pump.

House Force Pumps

Suitable for use in connection with hydro-pneumatic water systems or for general water supply. "More than a thousand styles and sizes" of

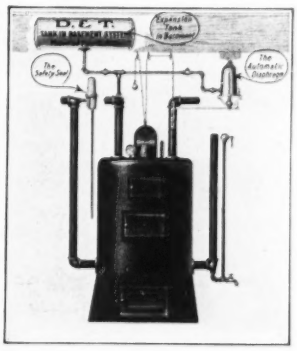
DEMING PUMPS

and complete hydro-pneumatic water systems are shown in our new 360-page pump catalogue. A copy will be sent to any interested plumber on request.

The Deming Company
Salem, Ohio

GENERAL DISTRIBUTING HOUSES:
Henion & Hubbell, Chicago.
Harris Pump & Supply Co., Pittsburgh.
Ralph B. Carter Co., New York City.
Root, Neal & Co., Buffalo, N. Y.

Fig. 516. "Blue Special" House Force Pump.



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Place the expansion tank in basement where it belongs—in other words, install the

D & T SYSTEM

D & T Equipment is simple and easy to install. It is complete and self-contained. Permits use of smaller pipes; speeds up circulation; saves fuel.

You save money on every job, which adds to your profits and at the same time the D & T System reduces your customer's heating expense.

Sold under a five-year guarantee.

Write for latest Booklet, "Progress in Hot Water Heating"

D & T Manufacturing Company
1907-9 Pine Street St. Louis, Mo.

Classified Advertisements

The charge for advertisements under this heading is $1.00 for 25 words or less, including heading and address; 4 cents each for additional words. To insure insertion, copy and remittance should reach us by Wednesday morning.

Situations Wanted.

POSITION WANTED—LIVE WIRE FACtory executive, experience plumbers' brass goods and woodwork. Open January 1st. Position with salary and percentage preferred. Might consider investment. Address 2471, care "Domestic Engineering," Chicago. 11-3; 10

POSITION WANTED—BY MECHANIC of fifteen years' experience in the plumbing and heating business, as estimator and superintendent of work. Can furnish reference. Address Wm. McLaughlin, 14 Columbus St., Grand Haven, Mich. 11-3

POSITION WANTED—BY TRAVELING salesman, long experience plumbing and heating goods line. Excellent references. Will take salary, commission preferred. Address 2470, care "Domestic Engineering," Chicago. 10-27/11-3-10

Situations Open

WANTED—AT ONCE, BY PLUMBING and heating contractors at Buffalo, N. Y., estimator who is a thoroughly experienced, first class man, of good habits with unquestionable references. Capable of laying out and superintending work with accuracy and expedition. Address 2469, care of "Domestic Engineering," Chicago. 10-20-27; 11-3

WANTED—SALESMEN WITH AN ESTablished territory and trade, to handle R. & R. Heating, Plumbing and Tinning Cost Book, on commission basis. State territory and materials handled. Replies strictly confidential. Richards & Roberts, Stamford, Conn. 11-3

WANTED—SALESMAN, BY PLUMBING and heating concern, to call on trade in Michigan and Indiana, acquainted with trade and having ability to sell and hold same. Every possible co-operation will be given. Do not apply for position unless you have ability to fulfill position of this kind, which is open only to live wire man. Address 2467, care "Domestic Engineering," Chicago. 10-20-27; 11-3

WANTED—WE HAVE OPENINGS FOR two live salesmen to handle our line of high grade brass goods on a commission basis in territory already developed. State age, experience in the field and give references. Address, Lou Brennan, President Victor Brass Mfg. Co., Cleveland, Ohio. tf

For Sale.

FOR SALE—CHEAP. WELL ESTABlished plumbing business, town 900. Plenty business. Complete outfit tools and Mueller tapping machine. Good opening. Write H. C. Greenly, Fruita, Colo. 10-27;11-3

FOR SALE—NO. 2 TOLEDO PIPE Threading Machine. Good as new. Never cut 20 threads. Address M. G. Edington & Sons, Lyons, Ind. 11-3

FOR SALE—3 LENGTHS; ABOUT 60 feet in all, 5-inch wrought iron second hand pipe at 45 cents per ft.; 35 ft. in two lengths, 7-inch wrought iron second hand pipe at 60 cents per ft.; one 4-inch iron body gate valve, screwed ends, $7.00; two 5-inch iron body gate valves, $8.00 each; all good as new. Address C. J. Ohlmacher & Co., Sycamore, Ill. 11-3; 10

FOR SALE—ENTIRE EQUIPMENT OF modern plumbers' brass goods factory: Turret lathes, drill presses, polishing lathes, gas engine, engine lathe, shaper, milling machine, coke furnaces, patterns for bath cocks, basin cocks, special patented goods, tools and equipment for making goods complete. Must be sold within thirty days. Address 2454, care "Domestic Engineering," Chicago. 9-15 tf.

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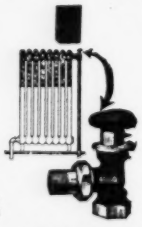

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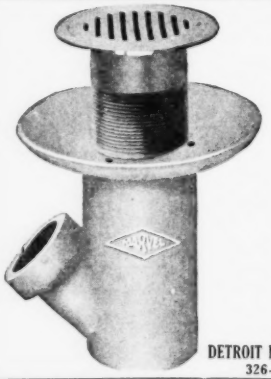

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Adjustable Shower Trap

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Cast iron, black or galvanized. Tapped 2-in. iron pipe.

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Wood Wheel Handle
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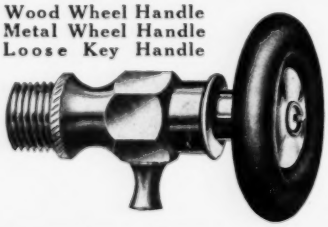
Size 1/8"



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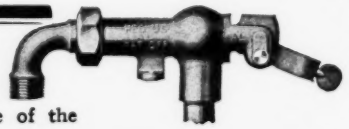

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